

BOTANICAL MUSEUM LEAFLETS

HARVARD UNIVERSITY

CAMBRIDGE, MASSACHUSETTS, JUNE 29, 1951

Vol. 15, No. 2

PLANTAE AUSTRO-AMERICANAE VII

DE FESTO SEULARI RICARDI SPRUCEI AMERICA AUSTRALI
ADVENTU COMMEMORATIO ATQUE DE PLANTIS
PRINCIPALITER VALLIS AMAZONICIS
DIVERSAE OBSERVATIONES

BY
RICHARD EVANS SCHULTES¹

ONE HUNDRED years ago, on July 12, 1849, Richard Spruce arrived in the Amazon Valley to begin his epochal botanical explorations in South America. After the passage of a century, Spruce's work remains the most complete phytogeographic labor ever carried out in the Amazonia. His collections from the Rio Negro basin, where, fighting overwhelming odds of sickness, hunger, weariness and loneliness, he explored continuously from 1851 to 1855, have been exceedingly rich in novelties and are still yielding new species and varieties to monographers.

Spruce had an uncanny ability at searching out the extraordinarily rare endemics which characterize the isolated caatingas of the Rio Negro. Many have never been collected since Spruce's day, whereas others have been appearing sporadically in recent collections from that apparently most inexhaustible of areas.

From September 1947 through July 1948, I explored

¹Botanist, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, United States Department of Agriculture; Research Fellow, Botanical Museum, Harvard University.

the upper Rio Negro valley in Colombia and Brazil, carrying out investigations of *Hevea* rubber and allied plants for the Bureau of Plant Industry of the United States Department of Agriculture in collaboration with the Instituto Agronômico do Norte. In large measure, I followed the trail of Richard Spruce in search of rare species of *Hevea*; it was possible also to make a small general collection, especially from the caatingas. It is amazing to learn how many of the collections represent plants which seem not to have been collected since Spruce's time. The same is true of the collections of other naturalists (Ducke, Fróes, Baldwin, Murça Pires and Black) who have recently penetrated the Rio Negro.

With deep respect and in a spirit of humbleness, I dedicate this paper to Richard Spruce on the occasion of the Centennial of his arrival on the continent of South America for his self-sacrificing exploration which, without respite, he carried out from 1849 to 1864 in Brazil, Colombia, Ecuador, Peru and Venezuela. A pioneer phytogeographer, he was animated by a deep love of all nature and an insatiable thirst for knowledge in pure science. In dedicating this paper, I cannot refrain from using two touching passages from Spruce's writings which reveal the inner soul of the man. In a letter written at São Gabriel on the Rio Negro on February 17, 1851 to Mr. Baines and preserved in the Yorkshire Philosophical Society (Report 1907 Yorksh. Philos. Soc. (1907) 18), we read what has appealed to me as the simplest and most honest presentation of the underlying motives of phytogeographical endeavors.

“Then there is the greatest of all pleasures to the naturalist, however some utilitarians may affect to undervalue it, that of discovering new species, of dotting in (as it were) new islands on the map of nature, and, in some cases, of even peopling continents that appear to be deserts.”

And, in another letter, directed to Mr. George Ben-

tham, and published in his "Notes of a Botanist on the Amazon and the Andes" 2 (1908) 20, Spruce reveals how, in spite of oppressive sickness and weariness, his dynamic love of knowledge for the sake of knowledge encouraged and spurred him on to incredible feats.

"I have lately been calculating the number of species that yet remain to be discovered in the great Amazonian forest, from the cataracts of the Orinoco to the mountains of Matto Grosso; taking the fact that by moving away a degree of latitude or longitude I found about half the plants different as a basis, and considering what very narrow strips have, up to this day, been actually explored, and *that* often very inadequately, by Humboldt, Martius and myself, and others, there should still remain some 50,000 or even 80,000 species undiscovered. To anyone but me and yourself this estimation will appear most extravagant, for even Martius (if I recollect rightly) emits an opinion that the forests of the Amazon contain but few specimens. . .

"At the highest point I reached on the Uaupés, the Jaguaraté Caxoeira [now the boundary line between Brazil and Colombia], I spent about a fortnight, in the midst of heavy rains, when (according to my constant experience) very few forest trees open their flowers. But when the time came for my return to Panuré the weather cleared up, and as we shot down among the rocks which there obstruct the course of the river, on a sunny morning, I well recollect how the banks of the river had become clad with flowers, as it were by some sudden magic, and how I said to myself, as I scanned the lofty trees with wistful and disappointed eyes, 'there goes a new *Dipteryx* — there goes a new *Qualea* — there goes a new *the Lord knows what!*' until I could no longer bear the sight, and covering up my face with my hands, I resigned myself to the sorrowful reflection that I must leave all these fine things 'to waste their sweetness on the desert air.' From that point upwards, one may safely assume that nearly everything was new, and I have no doubt that the tract of country lying eastward from Pasto and Popayán where are the head-waters of the Japuré, Uaupés, and Guaviare — offer as rich a field for a botanist as any in South America. But I have made enquiries as to the possibility of reaching it, and I find that it will be necessary to cross páramos of the most rugged and inhospitable character, and afterwards risk oneself among wild and fierce Indians, so that I fear its exploration must be left to some one younger and more vigorous than myself."

Study of plant collections made during the past ten years, chiefly in the Amazon Valley of Brazil and Co-

EXPLANATION OF THE ILLUSTRATION

PLATE XV. RICHARD SPRUCE. From a photograph
in the Gray Herbarium.

Drawn by ELMER W. SMITH



lombia—in Spruce's territory, — has resulted in a number of interesting additions to our knowledge of the South American flora. In the following pages, I have presented a miscellany of notes of an ethnobotanical, phytogeographical, ecological or historical nature, together with the description of a number of new species.

I acknowledge gratefully the valuable collaboration of a number of my colleagues who have determined special groups of plants for me: Mr. A. H. G. Alston (*Selaginella*); Dr. L. H. Bailey and Dr. H. Emery Moore (*Palmae*); Mr. J. A. Steyermark (*Senefelderopsis*); Dr. José Cuatrecasas (*Tiliaceae* and *Quararibea*); Dr. Bassett Maguire (*Guttiferae*); Mr. Joseph Monachino (*Pouteria*); Dr. Lyman B. Smith (*Bromeliaceae*); and Dr. Robert Woodson (*Apocynaceae*). It is a pleasure to express my thanks to the authorities of the Jardín Botánico in Madrid for their kind permission for me to publish notes on several of the Mutis water-colors of Colombian plants which I had the great good fortune to examine in some detail in June 1950. I have also to thank Mr. Elmer W. Smith and Mrs. Dorothy H. Marsh whose appreciated artistry has enlivened and enhanced certain of the material herein presented.

SELAGINELLACEAE

Selaginella amazonica *Spring* in Martius Fl. Bras. 1, pt. 2 (1840) 124.

Alston (in Fedde Repert. 40 (1936) 308) cites six collections of *Selaginella amazonica*, all from the Río Negro or its uppermost affluents. Two of the collections cited below establish the presence of this species in Colombian territory. It is usually a caatinga plant, but can grow in dense carpets on rocky and exposed mountain tops, as evidenced by *Schultes & López 10104*.

BRAZIL: Estado do Amazonas, Rio Negro basin, Rio Uaupés, at base of Serra Tukano. November 7, 1947, *Richard Evans Schultes & João Murça Pires 9005*.

COLOMBIA: Comisaría del Vaupés, Rio Negro, opposite Piedra del Cocuy. December 26, 1947, *Richard Evans Schultes & Francisco López 9523*.—Comisaría del Vaupés, Río Guainía basin, Río Naquiéni, Cerro Monachí. "On top of mountain." June, 1948, *Richard Evans Schultes & Francisco López 10104*.

Selaginella asperula *Spring* in *Martius Fl. Bras.* 1, pt. 2 (1840) 127.

Ranging from Venezuela to Peru and Bolivia, this species is especially concentrated in the Rio Negro Valley from which area Alston (l.c. 309) cites seven collections. *Schultes & López 9522* is the first collection from Colombian territory. This species is native to xerophytic caatingas and grows on white sand.

BRAZIL: Estado do Amazonas, Rio Negro basin, Rio Uaupés, at base of Serra Tukano. "On white sand in caatinga." November 7, 1947, *Richard Evans Schultes & João Murça Pires 9031*.—Estado do Amazonas, Rio Negro basin, Rio Uaupés, Ipanoré. "On sandy caatinga." November 14–15, 1947, *Richard Evans Schultes & João Murça Pires 9085*.—Same locality and date, *Schultes & Pires 9086*.—Estado do Amazonas, Rio Negro basin, Rio Xié near mouth. December 2, 1947, *Richard Evans Schultes & Francisco López 9202*.—Estado do Amazonas, Rio Negro basin, Rio Xié, Cachoeira Cumatí. December 3, 1947, *Richard Evans Schultes & Francisco López 9218*.

COLOMBIA: Comisaría del Vaupés, Río Negro, opposite Piedra del Cocuy. December 26, 1947, *Richard Evans Schultes & Francisco López 9522*.

Selaginella cordifolia (*Desv. ex Poir.*) *Spring* in *Bull. Acad. Brux.* 10 (1843) 228.

Selaginella cordifolia, known from Puerto Rico, Cuba, Hispaniola and tropical Brazil, is one of the commonest species in sandy areas of the upper Rio Negro basin. It is herewith registered for the flora of Venezuela for the first time.

BRAZIL: Estado do Amazonas, Rio Negro basin, Rio Uaupés, Serra Wabeese, on left bank below Bela Vista. "On forest floor." Novem-

ber 17, 1947, *Richard Evans Schultes & João Murça Pires 9147*.—Estado do Amazonas, Rio Negro, São Gabriel (Uaupés), on Serra São Gabriel. “Very small, grows pendant on mossy rocks. Apparently never larger.” November 20–25, 1947, *Richard Evans Schultes & Francisco López 9171*.

VENEZUELA: Territorio del Amazonas, Río Negro, Cerro Cocuy. “On wet rocks.” December 22–23, 1947, *Richard Evans Schultes & Francisco López 9428*.

***Selaginella fragilis* A. Braun** in *Ann. Sci. Nat.* sér. 5, 3 (1865) 305.

This species of *Selaginella* appears to be endemic to the uppermost Rio Negro. It is known only through two previous collections (Alston l.c. 310).

BRAZIL: Estado do Amazonas, Rio Negro, São Gabriel, Serra de São Gabriel. September 15, 1947, *Richard Evans Schultes & Francisco López 8760*.—Estado do Amazonas, Rio Negro, Jucabí at mouth of Rio Curicuriari. April 23, 1948, *Richard Evans Schultes & Francisco López 9838*.

***Selaginella Kochii* Hieronymus ex Koch-Grünberg** *Zwei Jahre unter den Indianern* 2 (1910) 361; *Fedde Repert* 8 (1910) 151.

This species, collected by the famous anthropologist-explorer of the Rio Negro area, Dr. Koch-Grünberg, has previously been known from the type alone. The type was collected in the Colombian part of the Río Negro Valley. It is a species of shaded forest floors. It is herewith recorded for the flora of Venezuela.

BRAZIL: Estado do Amazonas, Rio Negro basin, Rio Uaupés, Serra Wabeese on left bank below Bela Vista. November 17, 1947, *Richard Evans Schultes & João Murça Pires 9134*.—Estado do Amazonas, Rio Negro, São Gabriel. “On forest floor.” November 20–25, 1947, *Richard Evans Schultes & Francisco López 9176*.—Estado do Amazonas, Rio Negro basin, Rio Curicuriari, Serra Curicuriari. “On summit of mountain in forests.” April 26, 1948, *Richard Evans Schultes & Francisco López 9827*.

VENEZUELA: Territorio del Amazonas, Cerro Cocuy. “Carpeting humus and rock slopes.” December 22–23, 1947, *Richard Evans Schultes & Francisco López 9428*.

***Selaginella producta* Baker** in Journ. Bot. 21 (1883) 243.

Selaginella producta was collected several times by Spruce along the entire Rio Negro. *Schultes & López 9219* is the sixth collection of this curious caatinga species.

BRAZIL: Estado do Amazonas, Rio Negro basin, Rio Xié, Cachoeira Cumatí. December 3, 1947, *Richard Evans Schultes & Francisco López 9219*.

***Selaginella revoluta* Baker** in Journ. Bot. 21 (1883) 14.

Selaginella revoluta has been known from the uppermost parts of the Rio Negro Valley in Brazil and from the distant Río Ucayali in Peru (Alston l.c. 315).

BRAZIL: Estado do Amazonas, Rio Negro, Jucabí near mouth of Rio Curicuriari. April 23, 1948, *Richard Evans Schultes & Francisco López 9839*.

***Selaginella stellata* Spring** in Martius Fl. Bras. 1, pt. 2 (1840) 129.

Selaginella stellata was described from material from the lower course of the Amazon. These recent collections extend our knowledge of the distribution of this species.

BRAZIL: Estado do Amazonas, Rio Negro basin, Rio Xié, near mouth. December 2, 1947, *Richard Evans Schultes & Francisco López 9202*.—Estado do Amazonas, Rio Negro basin, Rio Dimití. "On mountain side." May 12-19, 1948, *Richard Evans Schultes & Francisco López 9950*.

***Selaginella subarborescens* Hooker** in Sec. Cent. Ferns (1861) t. 84.

This large species of *Selaginella* has been known only from the type collection which was made by Spruce on the Rio Uaupés in Brazil. *Schultes & Pires 9056* is the second collection and is from the type region. Since the type was collected on the Colombian-Brazilian boundary,

Selaginella subarborescens should also be included in an enumeration of Colombian species.

BRAZIL: Estado do Amazonas, Rio Negro basin, Rio Uaupés, mountain near Taracuá, at mouth of Rio Tikié. November 9, 1947, *Richard Evans Schultes & João Murça Pires 9056*.

ALISMACEAE

Sagittaria Sprucei *Micheli* in de Candolle Monogr. Phan. 3 (1881) 80.

Spruce collected the type of this aquatic plant near Manãos in 1855. It has been collected also from Belém do Pará at the mouth of the Amazon. *Black & Schultes 46-249* represents, apparently, the first collection from Colombia. It is a widespread element along the Amazon River.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu, October 30, 1946, *G. A. Black & R. E. Schultes 46-249*.

PALMAE

Ammandra decasperma *Cook* in Journ. Wash. Acad. Sci. 17 (1927) 218, 220.

The type and apparently only other reported collection of this palm was from Buenaventura. *Schultes 7353* is from a locality rather near Buenaventura.

COLOMBIA: Departamento de El Valle, Río Calima, Quebrada La Brea, 30-40 m. above sea-level. "In clumps. Leaves 3 m. long. Whole plant 4 m. tall. Flowers white." May 19, 1946, *Richard Evans Schultes 7353*.

Astrocaryum Munbaca *Martius* Hist. Nat. Palm. 2 (1824) 74.

Astrocaryum Munbaca, a palm of the Guianas and Brazil, has apparently not hitherto been reported from Colombia.

COLOMBIA: Comisaría del Amazonas, path from El Encanto (Río Caraparaná) to La Chorrera (Río Igaraparaná). "20 feet tall. Fruit

orange, edible. Very sharp spines on stem. Witoto name: *rui-rẽ-gö*." May 31-June 2, 1942, *Richard Evans Schultes 3885*.

***Geonoma hexasticha* Spruce** in Journ. Linn. Soc. 11 (1871) 110, 116.

Geonoma hexasticha has apparently not hitherto been recorded for the flora of Colombia. The type was collected by Spruce at São Gabriel on the Río Negro. *Schultes & López 9353* is probably the second collection of the species.

COLOMBIA: Comisaría del Vaupés, Río Negro, Igarapé Rana (Caño Ducuruapo), at confluence of Ríos Guainía and Casiquiare. "Low palm. Flowers purplish, fragrant." December 3, 1947, *Richard Evans Schultes & Francisco López 9353*.

***Geonoma paniculigera* Martius** Hist. Nat. Palm. 2 (1823) 11, t. 10.

This species, according to Dugand (in *Caldasia* 1 (1940) 47), occurs along the Río Caquetá in eastern Colombia and in Antioquia. *Schultes 3886* is the first record from the Putumayo drainage area and the third collection from Amazonian Colombia. *Schultes 3956*, from the same region, is probably referable also to this species, but is sterile.

COLOMBIA: Comisaría del Amazonas, path from El Encanto (Río Caraparaná) to La Chorrera (Río Igaraparaná). "Witoto name: *go-gö-rẽ*." May 31-June 2, 1942, *Richard Evans Schultes 3886*.

***Hyospathe elegans* Martius** Hist. Nat. Palm. 2 (1823) 1 (ex parte) t. 2 (excl. t. 1).

Known hitherto from British Guiana and Brazil, *Hyospathe elegans* is now recorded for the flora of Amazonian Colombia.

COLOMBIA: Comisaría del Amazonas, path from El Encanto (Río Caraparaná) to La Chorrera (Río Igaraparaná). "Small, 8 ft. tall. Witoto name: *yeé-rö*." May 31-June 2, 1942, *Richard Evans Schultes 3892*.

Jessenia polycarpa *Karsten* in *Linnaea* 28 (1856) 388.

Widespread in Venezuela and Colombia, *Jessenia polycarpa*—the *milpesos* of the Colombian Amazon—is one of the most conspicuous elements of the great Amazon and Orinoco forests. It supplies one of the chief, although transient, thatches of the Witoto Indians of El Encanto and La Chorrera. These Indians, who call the plant *ko-mái-hě*, believe that the fruits of *Jessenia polycarpa*, if eaten as a food, possess strong antitubercular properties.

COLOMBIA: Comisaría del Amazonas, Río Caraparaná, El Encanto. May 22–28, 1942, *Richard Evans Schultes* 3864.

Leopoldinia pulchra *Martius* *Hist. Nat. Palm.* 2 (1824) 59, t. 52–53, fig. 1–15.

According to Dugand (in *Caldasia* 1 (1940) 43), this beautiful palm is known in Colombia from Mitú on the Río Vaupés. Through one of its common names (*yará*), it has been reported also from the Río Puritú in the *trapezio amazónico* (Convers Pinzón in *Bol. Soc. Geogr. Col.* 4 (1937) 227). *Schultes & López* 9346 is apparently the second Colombian collection to be reported. *Leopoldinia pulchra* seems to occur most frequently in association with the proterozoic granitic shield. Therefore, we may expect it to be found only near the Brazilian boundary in Colombia, except perhaps for several small, isolated and outlying outcrops of this formation far to the west (e.g., near Araracuara).

The Tukano Indian name of *Leopoldinia pulchra* in the upper Rio Negro basin is *wee-peé-yo-ně*.

COLOMBIA: Comisaría del Vaupés, Río Negro, Igarapé Rana (Caño Ducuruapo), at confluence of Ríos Guainía and Casiquiare. “Fifteen feet tall. Leaf one meter long. Along flood-bank.” December 13, 1947, *Richard Evans Schultes & Francisco López* 9346.

Mauritia minor *Burret* in Notizbl. 11 (1930) 1.

Mauritia minor, described from material from the upper Caquetá of Colombia, forms dense stands in the nearly permanent bogs of the forest in the Comisariás del Caquetá, del Putumayo and del Amazonas (Dugand l.c. 32). In Witoto, the fruit of the *canangucho* or *Mauritia minor*, is called *gui-ně-na-kö-ně-kö*. It is gathered in quantity for the preparation of an alcoholic beverage known locally as *chicha de canangucho*.

COLOMBIA: Comisaría del Amazonas, Río Caraparaná, El Encanto. "Frondlets 6-8 ft. long or more. Petiole 9-10 ft. long. Tremendous tree, 70 ft. tall. Trunk basally 1½-2 ft. through, smooth. Fruit heavily laden." May 22-28, 1942, *Richard Evans Schultes 3865*.

BROMELIACEAE

Navia Lopezii *L. B. Smith sp. nov.*

Herba saxicola, caulescens, scandens, cauli robusto. Folia dense polystiche ordinata, integerrima; vaginis late ovatis, ca. 2 cm. longis, nervatis, atrocastaneis, lucidis; laminis sublinearibus, planis, usque ad 22 cm. longis et 23 mm. latis, basi paulo attenuatis, apice acuminatis et breviter involuto-subulatis, margine angusto cartilagineo brunneo, subtus minute perobscureque albo-lepidotis. Scapus nullus. Inflorescentia in foliorum centro nidulans, densa, e fasciculis paucis paucifloris formata; fasciculorum bracteis exterioribus oblongis, late acutis, quam sepalis subduplo brevioribus. Bractee florigeræ lanceolatae, acuminatae, amplae, sepala superantes, subcoriaceae. Flores sessiles. Sepala libera, linearia, acuminata, 50 mm. longa, subcoriacea, glabra, sepalo anteriore plano posterioribus alato-carinatis incluso. Petala roseo-purpurea (! Schultes), laminis ellipticis, ca. 1 cm. longis, stamina superantibus.

Dr. Smith writes, in connection with his description of *Navia Lopezii*: "This species has flowers more than twice the size of any previously known *Navia*, and the

rose-purple color of its petals appears to be unique in the genus.

“*Navia Lopezii* is named in honor of the late Francisco López whose hard and enthusiastic work as a co-collector with Schultes in the Amazon has enhanced our knowledge of the vast, unknown eastern part of Colombia and adjacent Brazil.”

BRAZIL: Estado do Amazonas, Cerro Dimití, upper Río Negro basin, on rocks. Alt. ca. 300 m. May 12-19, 1948, *Richard Evans Schultes & Francisco López 9956* (TYPE in U.S. Nat. Herb. No. 1985318).

***Navia myriantha* L. B. Smith sp. nov.**

Herba saxicola, caulescens; caule saepe elongato robustoque. Folia densissime polystiche ordinata, subintegra; vaginis parvis, ovatis, saepe vix distinctis, brunneis, subtus dense albo-lepidotis, mox glabris; laminis linearibus, planis, longe acuminatis, basi nullo modo angustatis, plus quam 5 cm. longis, 10-12 mm. latis, subtus et margine lepidibus minutis linearibus patentibus albis vestitis, mox glabris. Scapus gracilis, 40-55 mm. longus, foliis absconditus. Inflorescentia myriantha, verisimiliter simplex, densissime crasseque ellipsoidea, 3 cm. longa. Bracteae florigeræ late ovatae, acutae, quam sepala bene breviores, integrae, tenues. Flores sessiles. Sepala libera, linearia, acuta, 10 mm. longa, tenuia, glabra, sepalo anteriore plano posterioribus alato-carinatis incluso. Petala aurea, laminis 3 mm. longis, stamina superantibus.

Concerning this new species Dr. Smith states: “Although its leaf margin is slightly irregular, *Navia myriantha* shows no real teeth, such as all previously described species have. In this character, it is like *N. Lopezii*, but it differs on nearly all other points.”

BRAZIL: Estado do Amazonas, Cerro Dimití, upper Río Negro basin, on rocks. Alt. ca. 200 m. May 12-19, 1948, *Richard Evans Schultes & Francisco López 9955* (TYPE in U. S. Nat. Herb. No. 1985317).

LEGUMINOSAE

Cassia Tagera *Linnaeus* Sp. Pl. (1753) 376.

In 1854, Spruce collected *Cassia Tagera* at San Carlos, quite probably from the same conspicuous colony which covers the low granite boulders immediately behind the town. Humboldt had also collected it on the upper Orinoco. It is widely distributed in tropical America, but occurs extremely locally in sandy and sterile places.

When I first saw it at San Carlos, I was struck with the peculiar crawling, prostrate, pseudo-rosette habit of the plant. Its extraordinary tolerance of high acidity and extreme xerophytism amazed me even more. Wishing to have the plant tested as a possible cover-crop and sand-binder, I sent a pressed flowering sprig to Dr. Bernice G. Schubert of the Gray Herbarium. Upon learning the identity of the specimen, I returned later to San Carlos and gathered seeds which were sent to Ing. Agrón. George Addison of the Instituto Agronômico do Norte in Belém do Pará, who germinated them and cultivated the plant.

It appears from preliminary cultivation on a small scale that the little plant may be admirably suited for use as a sand-binder on sterile, xerophytic soils, especially on sands of a granitic origin. It grows well in Belém, in spite of persistent attack by a nematode.

VENEZUELA: Territorio del Amazonas, Río Negro, San Carlos. "Small, crawling rosette plant. Flowers yellow." December 9, 1947, *Richard Evans Schultes & Francisco López 9265*.

EUPHORBIACEAE

Mabea subserrulata *Spruce ex Benth* in *Hooker's Journ. Bot.* 6 (1854) 366.

Apparently hitherto unknown from Colombia, *Mabea subserrulata* was described from material collected by

Spruce at Ipanoré, a point on the Rio Uaupés not far from the Colombia-Brazilian frontier.

COLOMBIA: Comisaría del Vaupés, Río Negro, at confluence of Ríos Guainía and Casiquiare, Caño Ducuruapo (Igarapé Rana). "Small bush along bank of river. Fruit scarlet." December 13-17, 1947, *Richard Evans Schultes & Francisco López 9393*.

Sapium Aubletianum (*Müell.-Arg.*) *Huber* in *Bull. Herb. Boiss.*, sér. 2, 6 (1906) 362.

Schultes & López 8798C represents a topotypical collection of this rare species of *Sapium*. The type was collected a century ago by Spruce at São Gabriel on the Rio Negro.

BRAZIL: Estado do Amazonas, Rio Negro, São Gabriel (Uaupés) "Bush." September 19, 1947, *Richard Evans Schultes & Francisco López 8798C*.

ANACARDIACEAE

Anacardium negrense *Pires & Fróes* in *Bol. Técn. Instit. Agron. Norte*, no. 15 (1948) 20, t.

The type tree of *Anacardium negrense* is a landmark, an enormous and magnificent tree along the bank of the Rio Negro at the tiny hamlet of São Felipe, below the mouth of the Rio Issana. It is obviously cultivated. The collection from the neighboring locality of São Marcelino (*Schultes & López 9564*) is likewise an isolated tree obviously planted at the site of a hamlet by man. No other trees of this species, so far as I am aware, are encountered along the banks of the Rio Negro, although inhabitants of São Gabriel (Uaupés) state that a very ancient tree of *cajutí*, growing near the present church, was felled twenty or more years ago. In this connection, it is of interest perhaps to point out that this tree may be the one represented by Richard Spruce in his pencil sketch made at São Gabriel in July, 1852, and reproduced in his "Notes of a Botanist on the Amazon and Andes" [ed. A. R. Wallace] 1 (1908) fig. 15, although

to the best of my knowledge Spruce never collected the species.

Meeting such a rare tree, which was, in a way, cared for by man but never seen in the wild, was a challenge. The inhabitants of São Felipe stated that the tree did occur in the wild, but in distant affluents. When I met the tree at São Marcelino, I questioned the Indians then dwelling there and was informed that at the very headwaters of the Igarapé Uabá, emptying into the Rio Negro at São Marcelino on the right bank, the tree grows wild in the forest, that there are many, and that they grow into enormous trees. These people affirm that it is found wild only at the headwaters of creeks to the east of the uppermost Rio Negro. In January, the Igarapé Uabá was too dry to penetrate to its sources, so the joy of seeing *Anacardium negrense* in the wild had to be deferred.

In May, 1948, López and I penetrated to the headwaters of the Rio Dimití, a rather large affluent of the right bank of the Rio Negro to the north of São Marcelino. The lower half of this creek is relatively wide and easily navigated in canoe, but above the mouth of a large creek known as the Yauiyabú it is extremely winding and very narrow, becoming almost impossible for navigation because of obstructions. My notes of this trip give a picture of what we saw: "Here we saw also our first wild *cajutí* [*Anacardium negrense*]. This tree grows in from two to five feet of water in the rainy season, along with *Mauritia minor* (*burití*) and *Mauritiella aculeata* (HBK.) Burret. It is so extremely abundant that the locality or formation is called, curiously, not "buritizal" but "cajutizal." In the dry season, when it drops its fruit, according to natives here, there is an abundance of hunting because the animals converge on the then partially dry swamps to feast upon the fruit. The affluent of the Dimití which goes over towards the Caiaburí

is called *Yauiyabú*: in lingua geral *yauí* is the name of this *Anacardium* and *ya-bú* is river. It is said that the tree is more abundant in the *Yauiyabú* than in the *Dimití* itself. The *cajutí* here in the *Dimití* is a stout tree often attaining a height of 75 feet, but usually less, with a very heavy and spreading crown. It loses its leaves yearly after the fall of the fruit and is now with light green leaves of the new flush — probably coming out in February.”

BRAZIL: Estado do Amazonas, Upper Rio Negro basin, Rio Negro, São Marcelino opposite mouth of Rio Xié. “Low tree with spreading crown; very stout, gnarled trunk. Old leaves very thick, coriaceous. *Cajutí*.” January 5, 1948, *Richard Evans Schultes & Francisco López 9564*. — Estado do Amazonas, Upper Rio Negro basin, Rio Dimití. “*Cajutí*. Medium-sized tree in dense forest, standing in flooded hummocks. Leaves coriaceous.” May 12–19, 1948, *Richard Evans Schultes & Francisco López 9976*.

Senefelderopsis Steyermark gen. nov.

Arbores vel frutices lactiferi. Stipulae nullae. Folia penninervia integerrima petiolata supra basin limbi maculari-glandulosa. Flores monoici apetalii. Discus nullus. Inflorescentiae terminales vel axillares simplices vel paniculatim ramosae. Rami spiciformes, bracteis basi biglandulosis obsiti, e quarum axillis inferioribus flores foeminei 1–2 solitarii, e reliquis flores masculi ternati vel geminati parvi. Calyx masculus 3-partitus imbricatus, foemineo 3-partito imbricato. Stamina 2–3. Ovarii rudimentum nullum. Antherae biramosae, loculis longitrorsum adnatis. Ovarium 3-loculare. Ovula in loculis pendula solitaria. Semina carunculata.

Type species: *Senefelderopsis Croizatii* Steyermark.

This genus combines some of the characters found in *Sapium*, *Sebastiania* and *Senefeldera*. Except for the abundant latex found in all parts of the plant, the deeply 3-parted staminate calyx, the 2–3 stamens of the staminate flower, and the bilobate tips of the style branches,

it might be mistaken for another species of *Senefeldera*. It differs from *Sebastiania* in lacking stipules, leaf blades entire and biglandular at the base, stamens on short filaments and not exserted, and in the stouter, spiciform inflorescences in which the staminate inflorescence has more numerous flowers subtended by each bract. From *Sapium* the genus differs largely in having carunculate seeds (mostly ecarunculate in *Sapium*), a deeply 3-parted staminate calyx (*Sapium* has a 2-3-lobed staminate calyx), and entire leaf margins (*Sapium* has mostly denticulate margins).

***Senefelderopsis Croizatii* Steyermark sp. nov.**

Arbor 8-13.3-metralis; ramulis robustis, 5-8 mm. diametro, glabris, apice dense foliatis; petiolis 8-21 mm. longis, glabris; laminis coriaceis, subtus argenteo-albidis, marginibus subrevolutis roseo-purpureis, elliptico-obovatis vel obovatis, apice acutis vel obtusis, basi acutis, 6-13 cm. longis, 2.5-6.5 cm. latis, glabris, penninerviis, costis secundariis utroque 10-12 fere angulo recto patentibus prominentibus e margine 3-5 mm. anastomosantibus, supra basin glandulis 2 obsitis, inflorescentiis 3-4 in apice ramulorum confertis vel in axillis superioribus solitariis, 5-11 cm. longis; pedunculo inflorescentiae 2-2.2 cm. longo; rhachidi crassulo striatulo parce ferrugineo-tomentoso, 2-3 mm. diametro, sulphureo-viridi; inflorescentia mascula: bracteis triangulari-ovatis vel ovato-oblongis, acuminatis vel acutis, 0.5-2 mm. longis, 0.5-1.5 mm. latis, inferne parce ferrugineo-tomentosis, marginibus irregulariter eroso-denticulatis, quam glandulis lineari-oblongis, nigris, 2-2.5 mm. longis brevioribus; floribus masculis luteis, 6-8 in axillis bractearum sitis; calycis masculi laciniis 3 ovatis, obtusis, 1 mm. longis, 1 mm. latis, extus parce papillatis, marginibus irregulariter obtuse serrulatis; staminibus plerumque 2-3, aliquando 1;

antheris suborbiculari-reniformibus, 0.5 mm. altis, 0.7 mm. latis; filamenti parte libera 0.5 mm. longa; floribus foemineis basi inflorescentiae solitariis sessilibus; calycis foeminei laciniis ovatis, acutis, 1.8 mm. longis, 1-1.5 mm. latis, extus ferrugineo-tomentosis sed marginibus serrulatis glabris; stylis arcuato-recurvato-patentibus, 0.8 mm. longis, apice breviter bilobatis; ovario ferrugineo-tomentoso, 3 mm. longo (Plate XVI).

Senefelderopsis Croizatii is a dominant member of the forest of dwarfed trees and shrubs occurring on the southeastern basal slopes of Carrao-tepuí, and was seen only on this part of the area, really an extension of Ptari-tepuí table mountain. In cutting a trail through the part of the forest where this species occurred on the way up to the summit of Carrao-tepuí, the copious latex would exude abundantly from the stems every time the *machete* was used to cut through overhanging or pendent branches of this species. With the easily cut stems covered by the white latex, it was no effort to spot the trail on the return trip from the summit of this mountain to camp.

VENEZUELA: State of Bolívar, southeastern portion of base of Carrao-tepuí, alt. 1460-1615 m., "tree 25-40 feet tall; one of dominant trees in dwarfed woods; milky latex abundant; trunk straight; leaves coriaceous, deep green above, silvery white below, margins subrevolute; rose-purple; rhachis mustard greenish-yellow; flowers yellow." December 4-5, 1944, *Julian A. Steyermark 60849* (TYPE in Herb. Chicago Nat. Hist. Mus.).

Senefelderopsis chiribiquetensis (*Schultes & Croizat*) *Steyermark comb. nov.*

Senefeldera chiribiquetensis Schultes & Croizat in *Caldasia* 3 (1944) 122, fig.

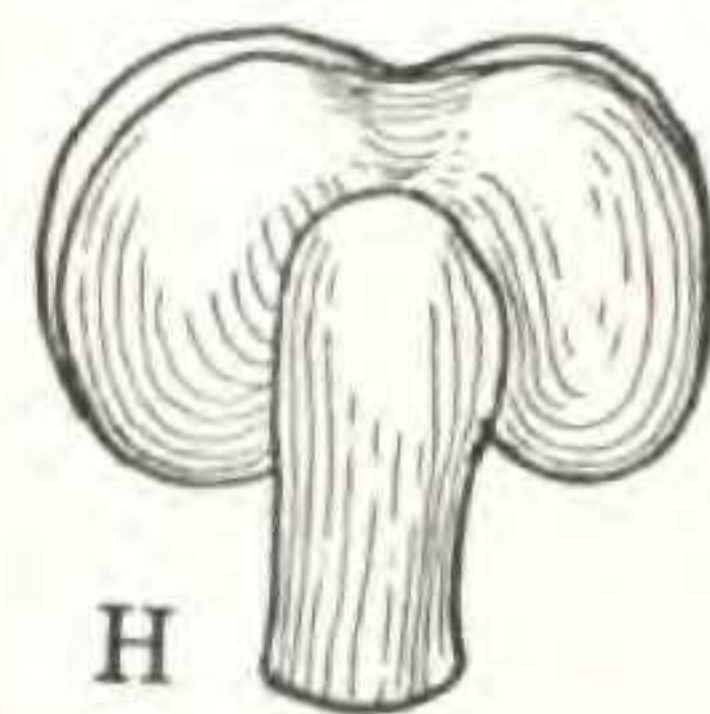
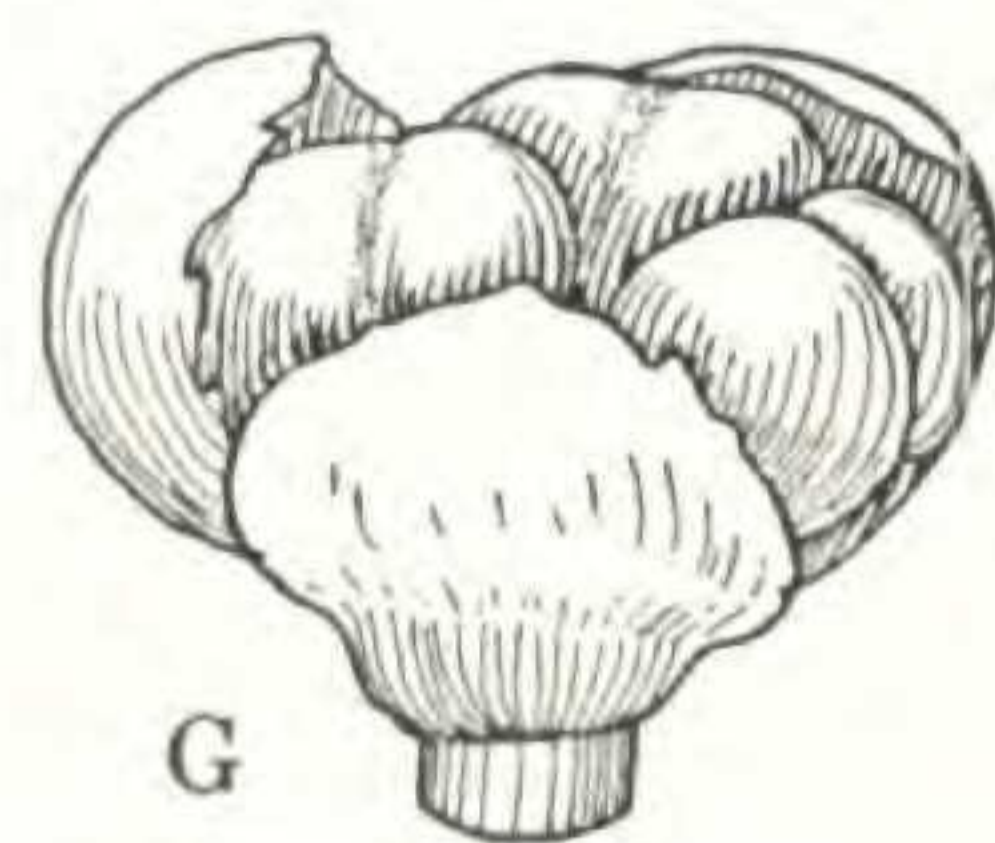
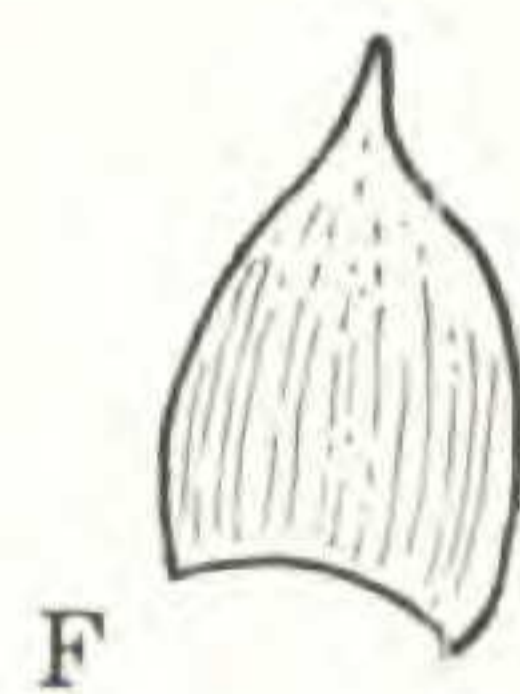
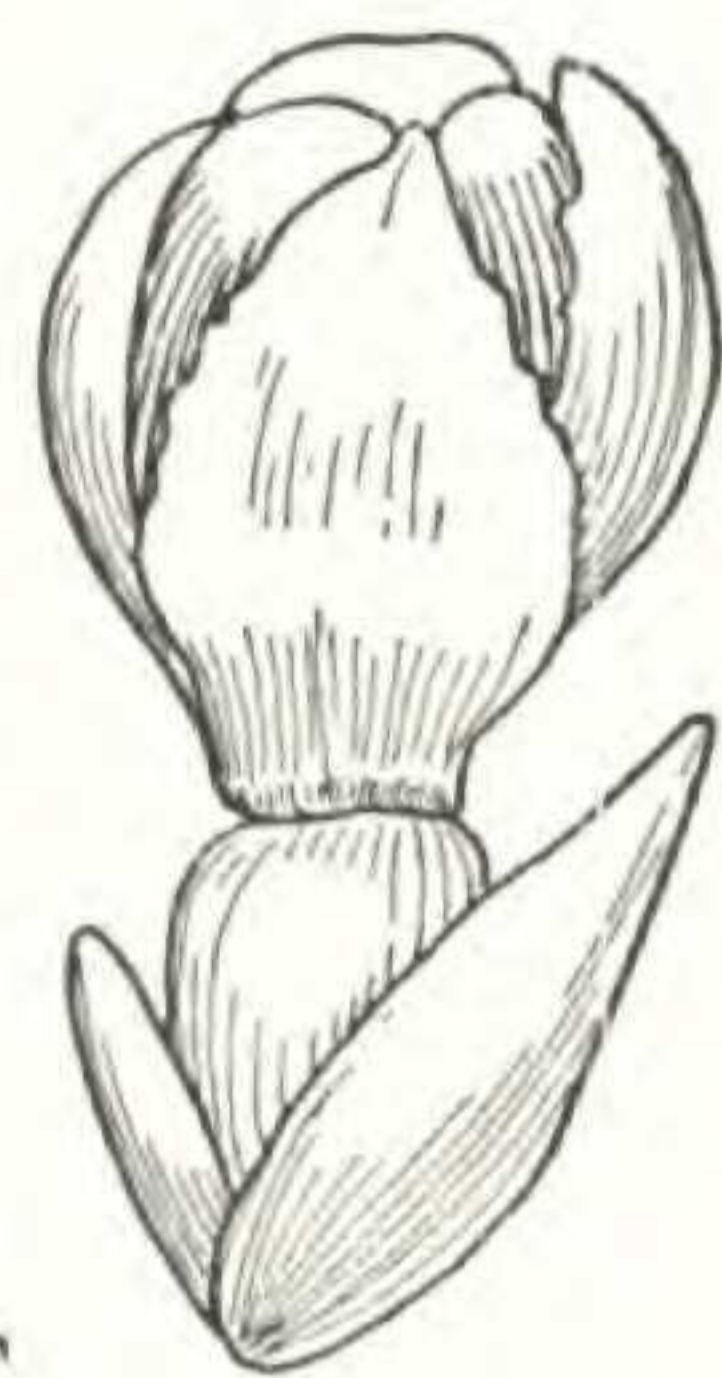
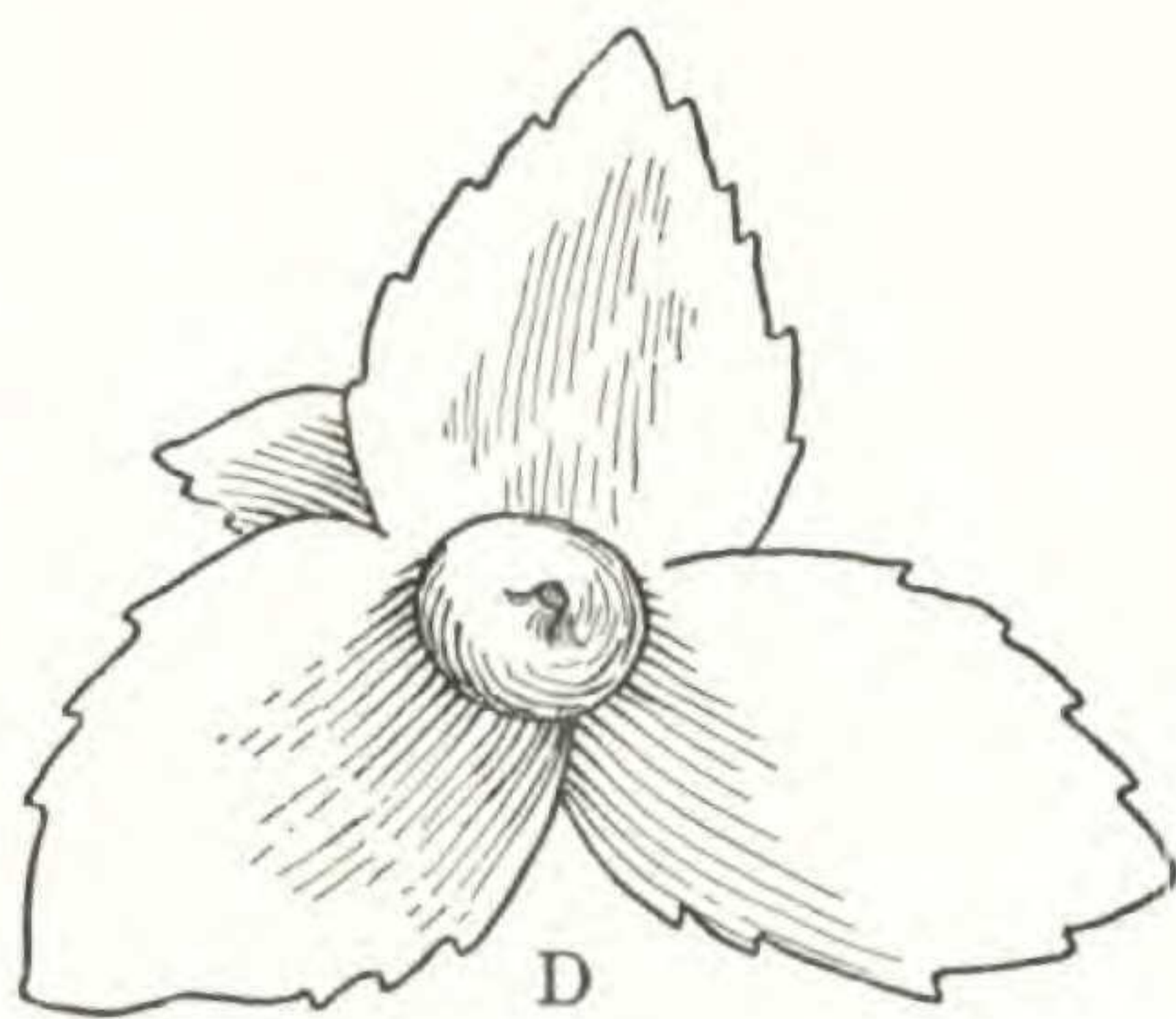
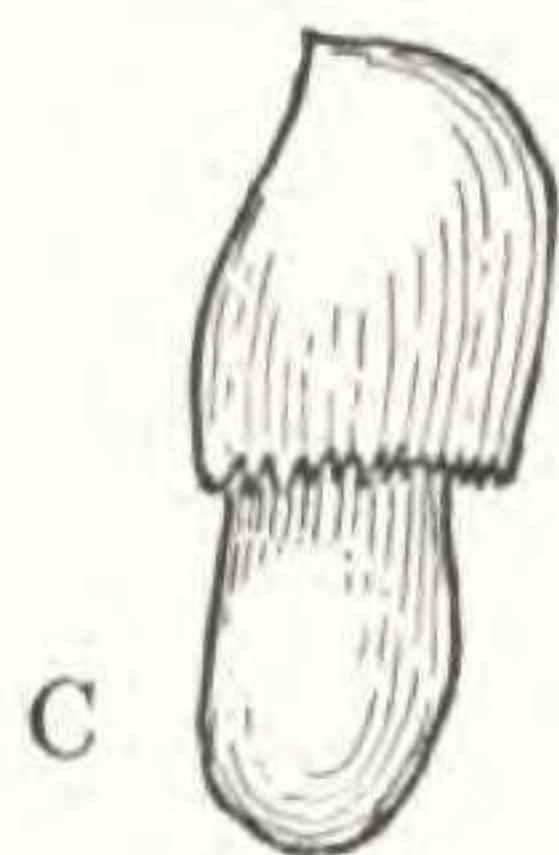
This second Colombian species, found in the Department of Vaupés in southeastern Colombia on one of the isolated sandstone mesas, Mount Chiribiquete (or Cerro Comején), in the Upper Apaporis Basin along the Ma-

EXPLANATION OF THE ILLUSTRATION

PLATE XVI. *SENEFELDEROPSIS CROIZATII Steyermark*.
Detached branch showing inflorescence and leaves.
A, pistillate flower, ten times natural size. B, transverse section through ovary, highly magnified. C, ovule with caruncle, highly magnified. D, staminate flower with stamens removed, showing calyx lobes from within, forty times natural size. E, staminate flower, lateral view, in natural position, thirty times natural size. F, bract at base of staminate flower, twelve times natural size. G, single staminate flower showing stamens and calyx lobes in natural position, thirty times natural size. H, single stamen, forty times natural size.

Drawn by DOUGLAS E. TIBBITTS

PLATE XVI



SENEFELDEROPSIS

Croizatii Steyermark

caya River, was originally described under *Senefeldera*. Comparison of the type (*Schultes 5623*) and co-type (*Schultes 5456*) with the Venezuelan material described above indicates that the two are congeneric and that the Colombian species represents a second species in the genus *Senefelderopsis*. The Colombian plant, likewise, yields abundant latex and is a dominant member of the vegetation. The Colombian *S. chiribiquetensis* differs mainly in having more slender inflorescences, shorter, more suborbicular-oblong staminate perianth segments which are rounded at the apex and have more irregularly jagged margins, and in the thinner leaf blades which are pale yellow-green instead of silvery white beneath and obtuse to rounded at the base.

Schultes (l. c.) has given an admirable account of the habitat and ecology of the area frequented by *S. chiribiquetensis*.

CYRILLACEAE

***Cyrilla racemiflora* Linnaeus** Mant. 1 (1767) 50.

Collections of this species from Amazonian South America are very rare in our herbaria. It was collected by Spruce at San Carlos on the Río Negro in Amazonian Venezuela. It appears to be an Antillean element which, by way of the Guiana highlands, has penetrated the upper Rio Negro area.

BRAZIL: Estado do Amazonas, Rio Negro basin, middle course of the Rio Curicuriarí. "Bush." January 1948, *Richard Evans Schultes & Francisco López 9718*.

TILIACEAE

***Lueheopsis Schultesii* Cuatrecasas** *sp. nov.*

Arbor parva. Rami badii glabri. Ramuli novelli divaricati-patentes, crasse ferrugineo-tomentosi. Folia simplicia, alterna, petiolata, coriacea, patula, disticha. Petiolus robustus, apicem versus incrassatus, in novellis ramulis

EXPLANATION OF THE ILLUSTRATION

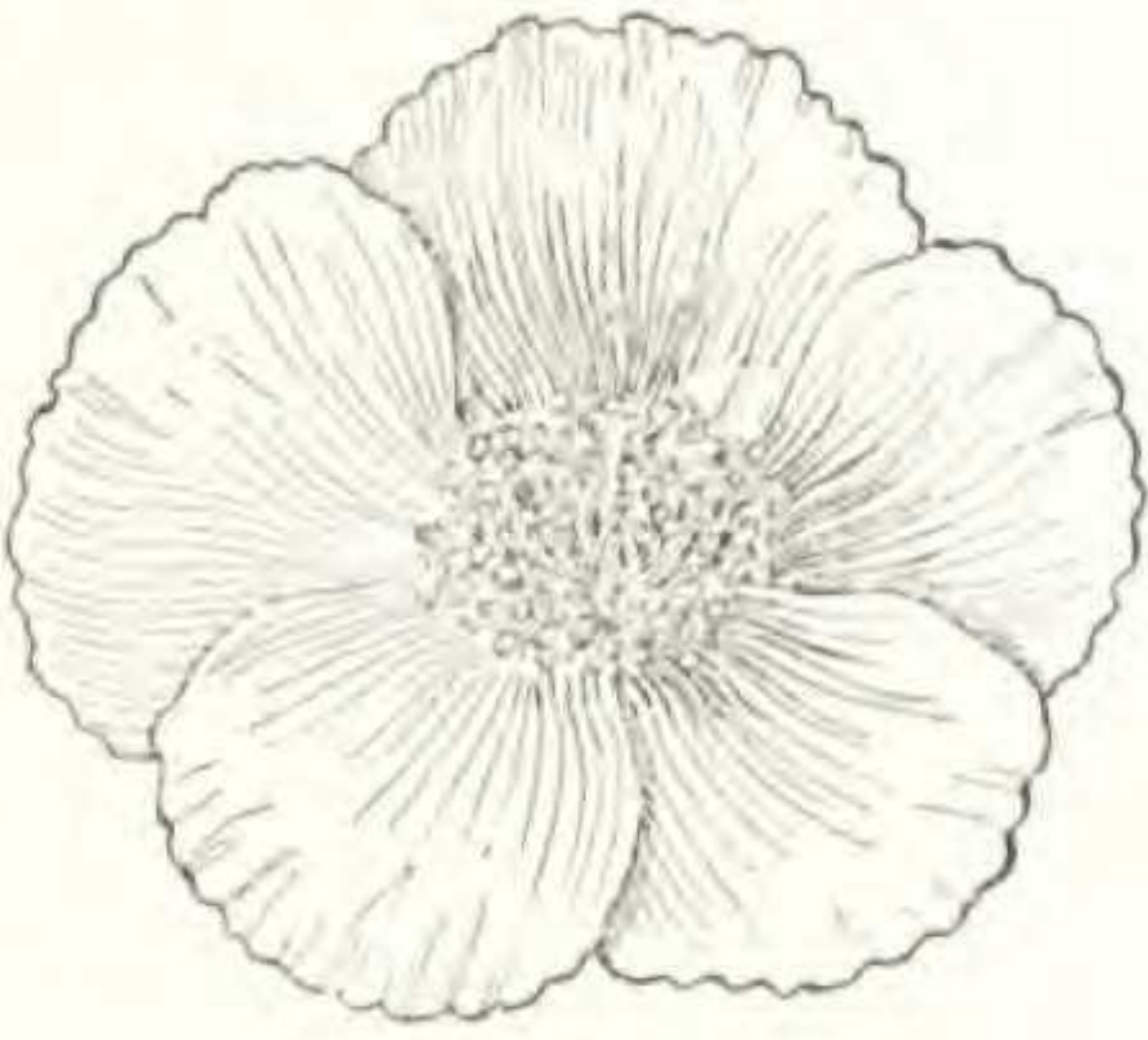
PLATE XVII. LUEHEOPSIS SCHULTESII *Cuatrecasas*.
1, flowering branchlet, one half natural size. 2,
flower, one half natural size. 3, stamens, three
times natural size. 4, anther showing apical pores,
fifteen times natural size.

Drawn by DOROTHY H. MARSH

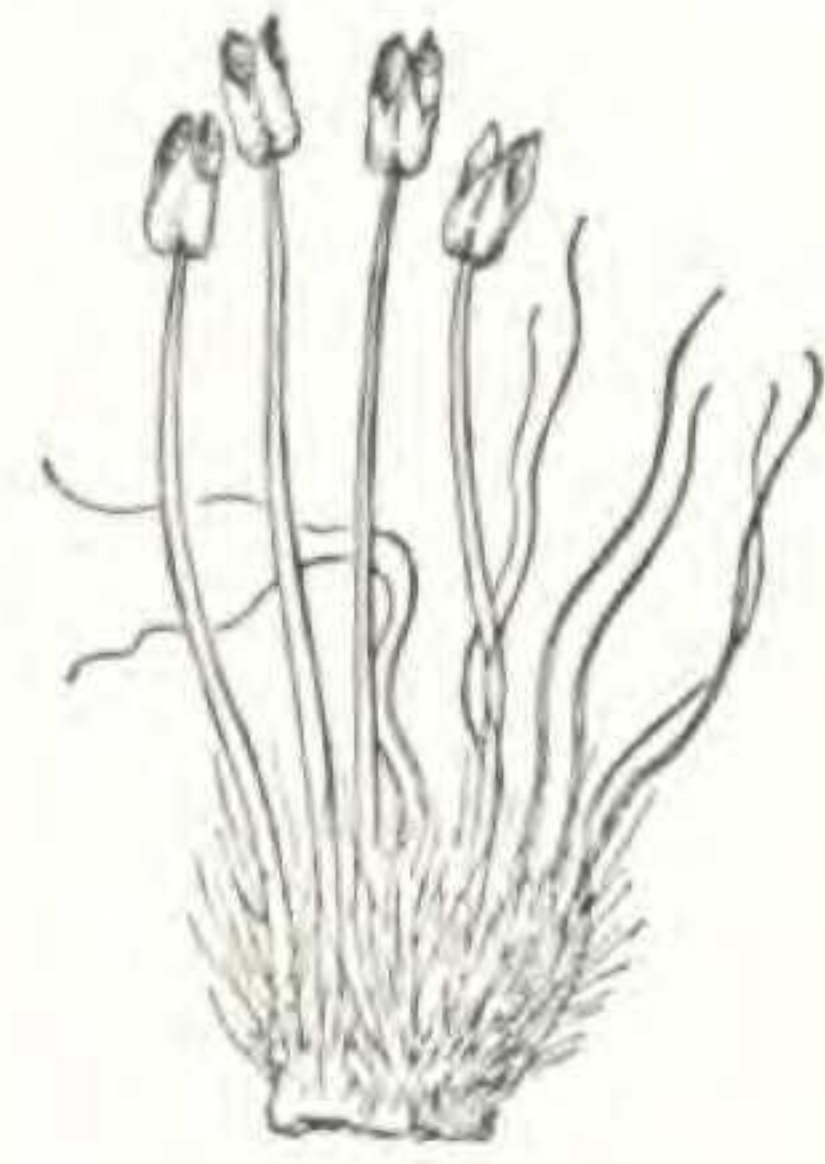
LUEHEOPSIS *Schultesii*

Cuatrecasas

2



3



1



4



Dorothy Marsh

dense tomentosus, in adultioribus glabrescens, usque ad 14 mm. longus. Lamina elliptico-lanceolata, basi obtusa vel rotundata, apice attenuata acute acuminata, margine integra, 8–17 cm. longa, 3.5–6 cm. lata; supra viridis, juveniles pilis sparsis stellatis praediti, mox glabra, nervis principalibus plusminusve signatis; subtus ferrugineo-tomentosa, pilis arachnoideis intricatis dense oblecta et pilis sparsissimis stellatis intermixtis in principalibus nervis munita, basi triplinervis, costa et nervis duobus lateralibus basilaribus subparallelis valde prominentibus, tertia parte superiore 2–3 nervis secundariis utroque latere ascendentibus marginem versus curvatis, nervis tertiariis exterioribus arcuato-ascendentibus numerosis, 4–9 mm. distantibus, interioribus transversis crebris, venulis minute reticulatis. Stipulae lanceolatae, valde villosae, 12 mm. longae, caducissimae. Inflorescentia pseudopaniculata; flores in ramulis hornotinis foliosis vel aphyllis, valde patulis, dense ferrugineo-tomentosis, in cymulis 1–5 flori pedunculatis dispositi; pedunculis rigidis divaricatis, 1–3 cm. longis, ferrugineo-lanuginosis, bracteis parvis, lanceolatis, caducis, pedicellis rectis, patentibus 6–15 mm. longis, tomentosus. Involucrum 7–9 bracteis ovato-lanceolatis, acutissimis, 14–16 mm. longis utrinque ferrugineo-tomentosis tertia parte inferiore coalitis. Pediculus floralis 1–1.5 mm. longus. Sepala 5, ovato-oblonga, apicem versus angustata, acutiuscula, 20–24 mm. longa, 7–10 mm. lata, extus tomentosa, pilis minutis stellatis densis aliquibus strigosis fasciculatis longioribus intermixtis tecta, intus glabra. Petala subrotundata, alba, 3 cm. longa, basi in unguem angustata, extus puberula, intus glabra. Tubus staminalis 2 mm. altus, crassiusculus, basi glaber, sursum puberulus, apice extus in staminodia numerosa capillaria circa 4 mm. longa tertia parte inferiore densissime setosis producta; intus stamina fertilia crebra pluriseriata inaequilonga ad 7 mm. longa filamen-

tis liberis complanatis basim versus plusminusve pilosis ferens. Antherae 1 mm. longae, oblongo-ellipticae, rectae, basi subcordata sub basim dorso affixae, loculis tertia parte superiore liberis, apice latiore apertis. Ovarium copiosissime hirsuto-setosum. Stylus glaber, rigidus, 5 mm. longus, apice stigmatate rugoso-papilloso.

In connection with his description of this novelty, Dr. Cuatrecasas writes: "*Lueheopsis Schultesii* is an interesting new species of this uncommon genus. It is closely related to *Lueheopsis altheaeflora* (Spruce) Burret, but differs from it in its generally divaricate habit, longer petioles, peduncles and pedicels, and especially in the larger flowers which have broader sepals which are much longer than the involucre, and in having very large white petals. The plant is striking, with the bright cinnamon or ferruginous color of the young branches and leaves beneath, and the spreading young branches bearing large showy flowers."

COLOMBIA: Comisaría del Amazonas, Río Igaraparaná. Los alrededores de La Chorrera. Alt. ca. 180 m. "Small bush. Flowers white. Witoto name: *mo-se-go-na*," June 1942, *Richard Evans Schultes 3925* (TYPE in Herb. Chicago Nat. Hist. Mus.).

BOMBACACEAE

Bombax humile (*Spruce ex Benth.*) *Bentham* in Journ. Linn. Soc. 6 (1862) 108, *nomen impl.*; ex Jackson Index Kew. 1 (1895) 320.

These three collections are apparently the first to be reported since the type. The first two are topotypical. The type was collected by Spruce nearly a century ago, at San Carlos, Venezuela, directly across the Río Negro from the Colombian locality of San Felipe. These collections establish the presence of *Bombax humile* in Colombia.

COLOMBIA: Comisaría del Vaupés, Río Negro, San Felipe (El Castillo), below confluence of Ríos Guainía and Casiquiare. "Large bush

or small tree up to 9 feet tall. Leaves thick papyraceous. Flowers red (petals) and yellow (stamens).” December 12, 1947, *Richard Evans Schultes & Francisco López 9298*.—Same date and locality, *9336A*.—Comisaría del Vaupés, Río Negro, vicinity of Piedra del Cocuí. December 27, 1947, *Richard Evans Schultes & Francisco López 9488*.—Comisaría del Vaupés, Río Guainía basin, Río Naquieni, vicinity of Cerro Monachi. “Small tree. Flowers red and yellow.” June 1948, *Richard Evans Schultes & Francisco López 10050*.

***Quararibea muricata* Cuatrecasas sp. nov.**

Arbor parva. Ramuli grisei, rugulosi, juveniles virides, pilis stellatis minutis vestiti. Folia mediocria, membranacea, simplicia, alterna, petiolata, viridia. Petiolus rigidus, 18–24 mm. longus, teres, supra partem dimidiam incrassatus et profunde striato-rugulosus, basi ampliatus, rugulosus, adpresse stellato-tomentosus. Lamina elliptico-oblonga vel ovato-elliptica, utrinque attenuata, apice acuminata, basi obtuse cuneata vel subrotundata, margine integra plana, 16–30 cm. longa, 6–10 cm. lata; supra glabra costa et nervis secundariis prominulis, reliqua laevis nervulis obsoletis; subtus prospectu glabra sed pilis sparsissimis stellatis praecipue ad nervos munita, costa crassiuscula eminenti, nervis secundariis sex latere utroque adscendentibus marginem versus arcuato-anastomosatis, nervis tertiariis transversis prominulis remotis cum venulis minus conspicuis in reticulum laxum anastomosatis. Flores solitarii, oppositifolii, pedunculati. Pedunculi mediocres, rigidi, ad 18 mm. longi, apicem versus sensim incrassati, profunde striolato-rugulosi, dense stellato-tomentosi, luteolo-virides, parte media apiceque bracteam brevem linearem tomentosam 4–8 mm. longam ferentes. Alabastra subturbinata, luteolo-viridia, siccitate lutea, valde muricata, densissime stellato-tomentosa, 18–30 mm. longa, 9–10 mm. lata. Calyx luteolo-viridis, tubulosus, basi conicus, crassus, coriaceus, circa 20 mm. altus, margine lobis 4 rotundatis vel obtusis, 2–4 mm. profundis, extus argutissime irregulariterque tuberculato-

muricatus, densissime pilis crassis stellatis tectus; intus adpresse sericeus. Petala 5, libera, albida, obovato-oblonga, apice rotundata, basim versus in unguem glabrum angustata, 28 mm. longa, 8 mm. lata, extus velutina, pilis stellatis dense oblecta; intus puberula. Staminorum columna crassiuscula, tomentosa, sed basim versus puberula, quam calyx plus duplo longior, 40 mm. longa, extremo in lacinias quinque antheriferas lineares crassiusculas 6-8 mm. longas producta; laciniis sex antherarum loculis ellipticis, 2.5-4 mm. longis, contiguis munitis, sed loculo inferiore (vel duo) parte superiore tubo concrecenti. Stylus erectus, valde exsertus, tomentosus. Stigma papillose capitatum, minute 5-lobatum, paulo incrassatum. Fructus maxime quercui prospectu simillimus. Cupula calycina coriacea, tuberculato-muricata, densissime tomentosa, 2.5 cm. diam., circa 15 mm. alta. Fructus siccitate coriaceo-induratus, minutissime adpresseque tomentosus, ovato-ellipticus, 32 mm. longus, 22 mm. latus, apice minute obtuseque 5-lobatus; pyrenis 5 sublignosis, circa 20 mm. longis, monospermis. Semina oblonga, fusca, circa 18 mm. longa, 5 mm. crassa.

Dr. Cuatrecasas states of this new species: "*Quararibea muricata* is related to *Q. putumayensis* Cuatr., but it is very different from all species in the genus because of its striking calyx, the surface of which is densely covered with strong rugosities and acute tubercles."

BRAZIL: Estado do Amazonas, Rio Uaupés, between Ipanoré and confluence with the Rio Negro: Tamaquaré, above Bela Vista. "Small tree. Flowers: petals cream, calyx green." November 8, 1947, *Richard Evans Schultes & João Murça Pires 9010* (TYPE in Herb. Chicago Nat. Hist. Mus.).

OCHNACEAE

Elvasia quinquelobata *Spruce ex Engler* in *Martius Fl. Bras.* 12, pt. 2 (1876) 353.

The type of this curious species was collected by

Spruce along the Río Guainía and the Casiquiare in 1853-54. The collection cited below appears to be the second reported.

BRAZIL: Estado do Amazonas, Upper Rio Negro basin, Rio Dimití. "Small tree or tall bush on deeply flooded banks. Flowers bright yellow." May 12-19, 1948, *Richard Evans Schultes & Francisco López 9933*.

GUTTIFERAE

(Contributed by Bassett Maguire)

Clusia axillaris *Engler ex Martius* in Fl. Bras. 12, pt. 1 (1888) 413, sect. **Androstylium** *Miquel*.

The following collections represent our knowledge of the range of this species:

BRAZIL: Estado do Amazonas, São Paulo de Olivença, *Krukoff 8626, 8933*—Rio Solimões, Igarapé, *Fróes 23752*—Igarapé Jandiatuba, *Fróes 23904*.

PERU: Departamento de Loreto, near Iquitos, *Klug 708*.

VENEZUELA: Territorio del Amazonas, Piedra del Cocuí, Río Negro. "Bush with white flowers." December 22-23, 1947, *R. E. Schultes & F. López 9436*.— São Gabriel do Cachoeira, *Spruce 2159* (TYPE).—Panuré [Ipanoré] ad Rio Uaupés, *Spruce 2854* (COTYPE).

Clusia botryoidea *Maguire sp. nov.*, sect. **Criuva** Bentham & Hooker, subsect. **Eucriuva** *Engler*.

Frutex scandens; caulibus crassis; foliis 15-20 cm. longis, 6-8 cm. latis, oblanceolato-cuneatis, subsessilibus, subcoriaceis, costa crassa ad apicem prope extenta, nervis lateralibus a costa angulo ca. 45° abeuntibus, prominulis, ca. 2 mm. distantibus, nervo colectivo a margine 1-2 mm. remoto; inflorescentia multiflora, botryoidea, 15 cm. longa, ramulis inferioribus 4-5 cm. longis; floribus sessilibus, bracteis navicularibus, lanceolatis, acutis, maximis ca. 1 cm. longis; sepalis 3-jugis, decussatis, exterioribus suborbicularibus, carnosis, 3-4 mm. longis, interioribus orbicularibus, concavis, ca. 8 mm. longis; petalis carnosis, orbicularibus, 6-8 mm. longis; staminodiis

6-8, dentiformibus, 2 mm. altis, 1 mm. latis; ovario 5-loculari, loculo multiovulato; capsula ca. 12 mm. longa, 15 mm. lata, depresso-globosa; stigmatibus 5, triangulo-ovatis, ca. 3 mm. longis, sessilibus, planis, marginibus conniventibus; floribus masculinis non visis.

Clusia botryoidea seems to resemble most closely *C. multiflora* Humboldt, Bonpland & Kunth, but it differs conspicuously in having oblanceolate (rather than obovate) leaves; six (rather than four) sepals; and stigmas sessile on the summit of the ovary (rather than elevated on conspicuous, stout styles).

COLOMBIA: Comisaría del Vaupés, base of Cerro Circasia, Río Vaupés. "Scandent shrub; fruit in clusters, pendent." March 7, 1943, *R. E. Schultes 5847* (TYPE in Herb. N.Y. Bot. Gard.).

***Clusia chiribiquetensis* Maguire sp. nov.**, sect. ***Euclusia* Planchon & Triana**, subsect. ***Chlamydoclusia* Engler**.

Frutex vel arbor parvula; ramis crassis, subsucculentis, in sicco angulatissimis; petiolis 2-3 cm. longis, crassis; laminis 6-10 cm. longis, (4) 5-8 cm. latis, suborbicularibus vel late obovatis vel late ovatis, coriaceis, apice obtusorotundato vel lato cum acumine brevi, basi rotundata vel oblique subcordata, costa prominenti, nervis lateralibus prominulis sursum curvatis, nervo colectivo a margine 1-2 mm. remoto; inflorescentia masculina terminalis, 1.5-3 cm. longa, 3 (?5)-flora; sepalis 5, exterioribus jugis late suborbicularibus, interioribus petaloideis, orbicularibus, 12-14 cm. longis, scarioso-marginatis; petalis 2-2.5 cm. longis, 1.5-1.8 cm. latis, late obovatis; staminibus numerosissimis 3-seriatis, filamentis in anulum 3-4 mm. altum connatis, filamentis ca. 1 mm. longis, 0.7 mm. crassis, antheris ca. 3 mm. longis, anguste lanceolatis, muticis, 2-locularibus, marginalibus longitudinalibus dehiscentibus, connectivo lato; inflorescentia foeminea 1 (3)-flora; sepalis 5; staminodiis in anulum

glutinosum 4–5 mm. altum connatis; ovario 5–6 loculari, loculis multiovulatis; fructu ca. 5 cm. longo, late oblongo-elliptico; stigmatibus 2–3 mm. longis, triangularibus, conniventibus, sessilibus; seminibus oblongo-ellipticis, ca. 8 mm. longis, 6 mm. latis, aliquantum compressis, pallidis.

This beautiful species may possibly be restricted to Cerro Chiribiquete, an isolated quartzitic mountain which has yielded a number of endemic plants. It is most closely related to *Clusia viscida* Engler, a species of the same general region, but which has relatively narrow oblanceolate leaves and anthers which are provided with a distinct cusp or awn.

COLOMBIA: Comisaría del Vaupés, Cerro Chiribiquete, Río Macaya. "Shrub." January 1944, *G. Gutiérrez & R. E. Schultes* 677 (TYPE in Herb. N.Y. Bot. Gard.).—Comisaría del Vaupés, Cerro Chiribiquete, Río Macaya. "Bush 7–8 feet tall." January 1944, *G. Gutiérrez & R. E. Schultes* 679 (COTYPE in Herb. N.Y. Bot. Gard.).—Comisaría del Vaupés Cerro Chiribiquete, Macaya River, Upper Apaporis Basin. "Large scraggly bush 10 feet high; latex yellow, sticky; flowers white; sepals red-purple; xerophytic savanna on sandstone, 400–1200 feet above forest floor, 1300–2100 feet above sea-level." May 15–16, 1943, *R. E. Schultes* 5473 [in fruit] (TOPOTYPE).—Same locality, July 24, 1943, *R. E. Schultes* 5623 (TOPOTYPE).

***Clusia columnaris* Engler ex Martius** in Fl. Bras. 12, pt. 1 (1888) 432, sect. ***Pachystemon* Engler**, subsect. ***Omphalantha* Planchon & Triana**.

This species had apparently not been collected since the original specimens were obtained by Spruce in the middle of the last century. The abundant material now at hand, from the region of the upper Rio Negro and upper Orinoco in Brazil, Colombia and Venezuela, shows that the species is perhaps one of the most common riverine *Clusias* of the area. It is a well-marked, though variable, species.

Pistillate material which was unknown to Engler may

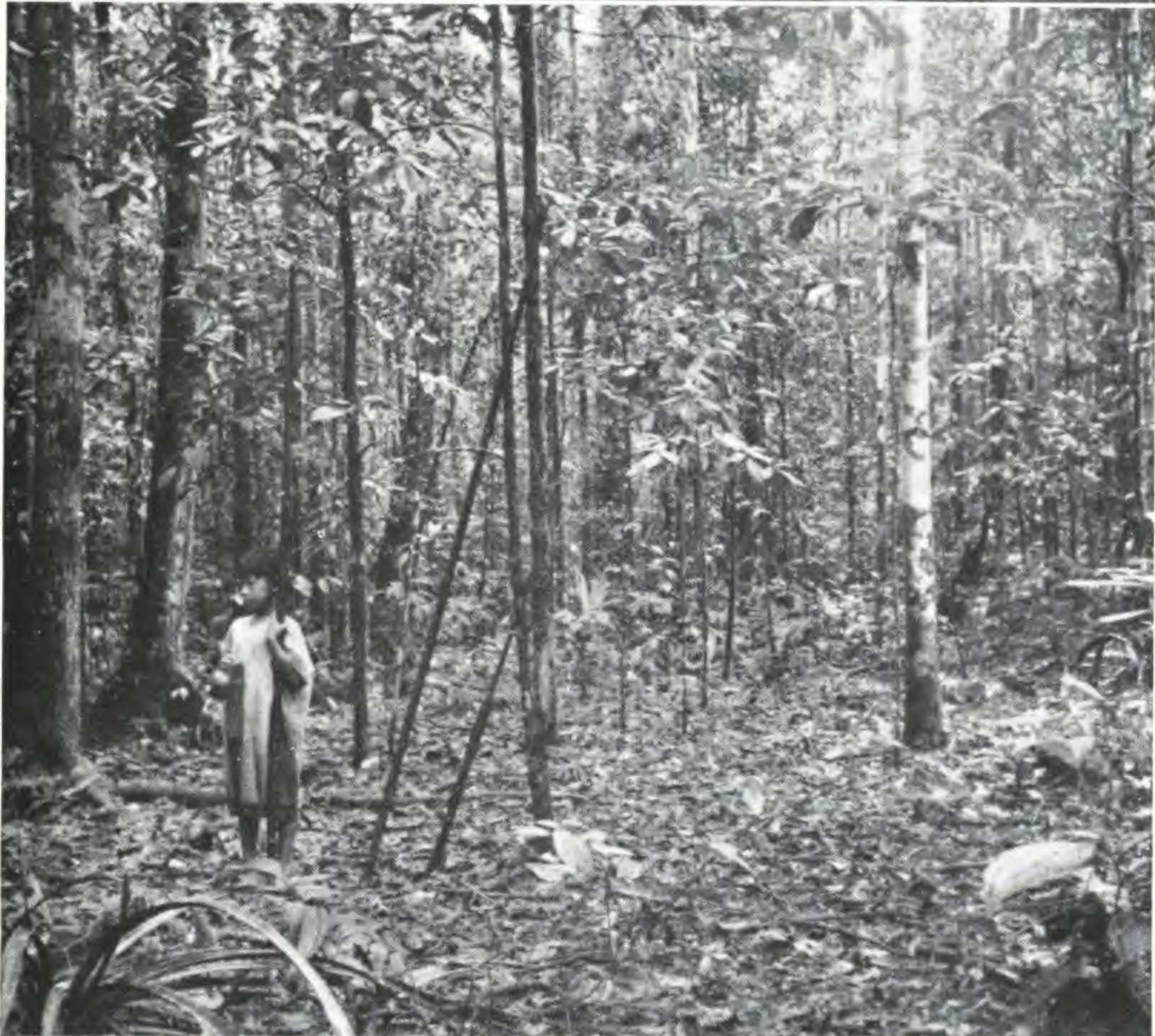
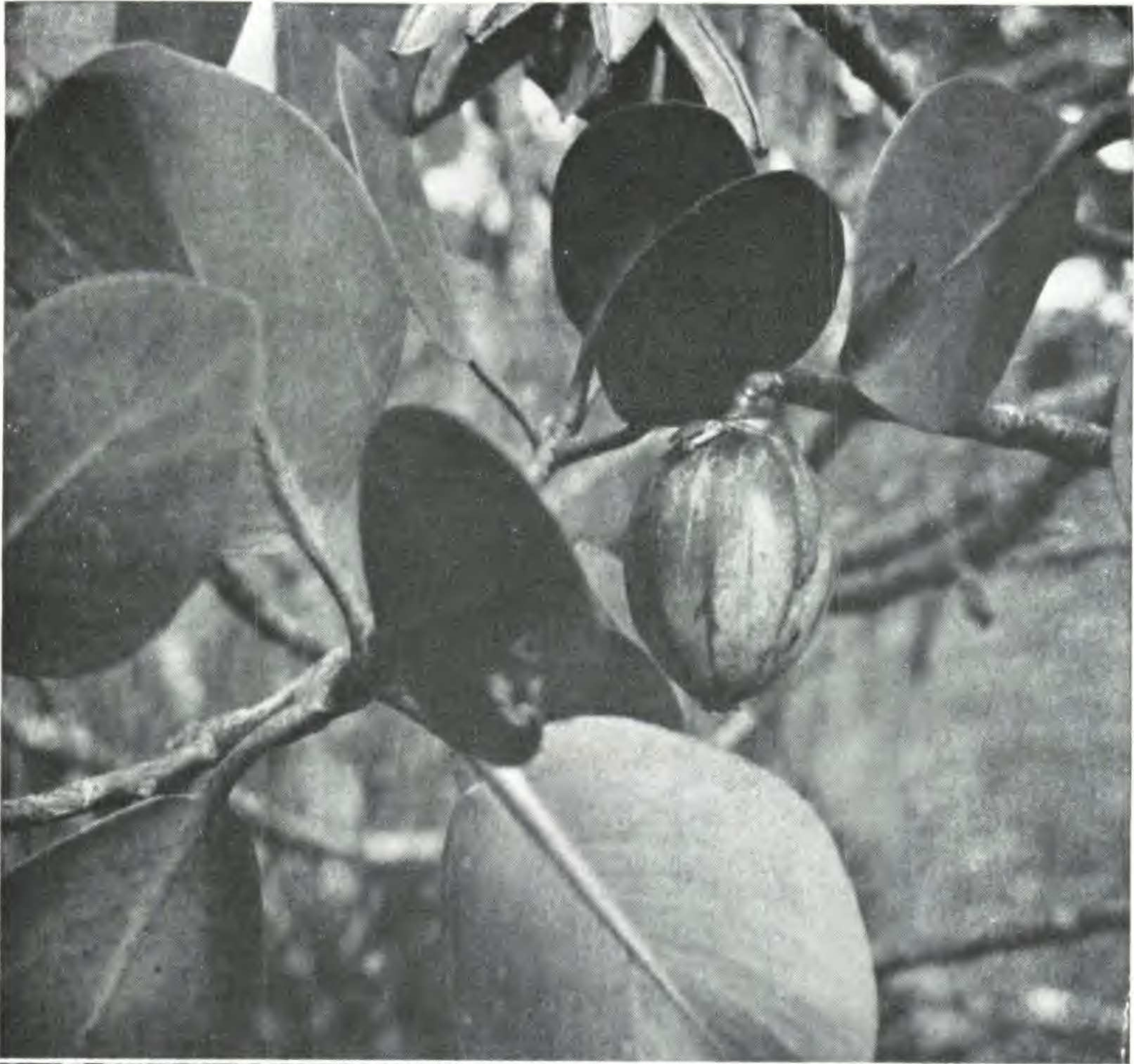
EXPLANATION OF THE ILLUSTRATION

PLATE XVIII. (Upper figure) *CLUSIA CHIRIBIQUE-TENSIS* *Maguire*. A photograph of the bush from which the collection *R. E. Schultes 5473* was taken.

(Lower figure) *DUROIA HIRSUTA* (*Poepp. & Endl.*) *K. Schum.* in the forest at Puerto Limón, Río Caquetá, Colombia. The several slender blackish trunks in the center and against which the blow-gun and shot-gun are leaning represent *Duroia hirsuta*. Note that a "natural" clearing accompanies this tree, which is called *solimán*, and which is inhabited by ants.

Photographs by RICHARD E. SCHULTES

PLATE XVIII



now be characterized as follows: petals narrowly obovate, white, conspicuously red at the base; staminodal disc or crown 2–4 mm. high, bearing one to several series of apparently circular or tangentially compressed sterile anthers or antheral depressions; in savanna forms, the corona may be obsolete; ovary 5- (6) celled; stigmas ovate, 2–3 mm. long, basifixed and sessile, connivent, borne on a stylar column ca. 1–3 (4) mm. long; fruit obovate, oblong, ca. 3 cm. long, the endocarp becoming cartilaginous and transversely corrugate (in the manner of *C. purpurea*).

BRAZIL: “Ad São Gabriel do Cachoeira, in fissuris rupium, Alto Amazonas, Brasiliae borealis,” *Spruce 1980* (TYPE).—Estado do Amazonas, Rio Cauabury, *Holt & Blake 443*.—Rio Içana, *Pires 695, 696*.—Serra de Tunuí, *Black 48-2696*.—Rio Uaupés, *Schultes & Pires 9052, 9082*.—Rio Negro, *Black 22305*.

COLOMBIA: Comisaría del Amazonas, Río Caquetá, *Schultes 5865*.

VENEZUELA: Territorio del Amazonas, Río Negro, *Schultes & López 9435*.—Río Cuao, *Maguire & Politi 27452, 29037*.—Cerro Sipapo, *Maguire & Politi 28705, 28718*.—Cerro Marahuaca, *Maguire & Maguire 29138, 29142, 29220*.—Cerro Yapacana, *Holt & Blake 701*.

***Clusia Gaudichaudii* Choisy ex Planchon & Triana** in *Ann. Sci. Nat. sér. 4, 13* (1860) 331, sect. **Phloi-anthera** *Planchon & Triana*.

Pistillate material of this species has apparently not yet been collected.

BRAZIL: “Ad oram meridionalem flum. Amazonum, ad ostium flum. Solimões,” *Spruce 1581* (TYPE) (DUPLICATE TYPE in Herb. N.Y. Bot. Gard.).—Estado do Amazonas, Tapurucuara, middle Rio Negro between mouth of Rio Curicuriari and Barcellos. “Flowers red,” September 26–October 14, 1947, *R. E. Schultes & F. López 8910*.—Estado do Amazonas, Tupurucuara, middle Rio Negro, between mouth of Rios Curicuriari and Barcellos. “Strangler epiphyte; flowers dark red.” September 26–October 14, 1947, *R. E. Schultes & F. López 8926*.—Estado do Amazonas, Paranagua, Teffé, basin of Rio Juruá. “Shrub 18 feet high, on varzea land.” *Krukoff 4532*.

***Clusia globosa* Maguire sp. nov.**, sect. **Clusiatrum** Planchon & Triana.

Arbor parva; ramulis tenuibus, ca. 4 mm. diam.; foliis subsessilibus, 10–14 cm. longis, 4–6 cm. latis, oblanceolatis, subcoriaceis, apice rotundo, basi acuto, costa prominenti, nervis prominulis, nervo indistincto colectivo, a margine ca. 0.5 mm. remoto; inflorescentia 3-flora, pedunculo 1–1.5 cm. longo, pedicellis ca. 1 cm. longis; sepalis 3-jugis decussatis, exterioribus late reniformibus, ca. 4 mm. longis, interioribus 8 mm. longis, 6 mm. latis, oblongis; petalis non visis; ovario 10–12 loculari, loculo multiovulato; fructu globoso, 14–16 mm. alto; stigmatibus rotato-planis, 10–12 cuneiformibus, ca. 4 mm. longis, 2 mm. latis, intramedio sessili, extramedio libero; apice capsulae 2 mm. diam. sine stigmatate; floribus masculinis non visis.

Clusia globosa seems to be most closely related to *C. cuneata* Benthham of British Guiana. It differs most conspicuously in its globose fruit with ten or twelve subsessile, half-free, radiant stigmas. In *Clusia cuneata*, the fruit is oblong-ovate, and the sixteen free stigmas are borne on an elongate stylar base.

COLOMBIA: Comisaría del Amazonas, trapecio amazónico, Boiauassú River. November 1945, R. E. Schultes 6790 (TYPE in Herb. N.Y. Bot. Gard.).

***Clusia insignis* Martius** Nov. Gen. & Sp. 3 (1829–32) 164.

Described from material collected at Manáos, *Clusia insignis* is rather common in the Rio Negro basin. It is registered for the flora of eastern Colombia through the collection cited below.

COLOMBIA: Comisaría del Vaupés, Río Negro, vicinity of Piedra del Cocuí. "Enormous tree 75 feet tall, 18 in. in diameter, columnar. Wood reddish towards centre, yellow-white nearer surface, very hard. Leaves thick. Flowers extraordinarily showy, purple-red, 5 inches

across, smelling like rancid butter. In caatinga." December 27, 1947, *Richard Evans Schultes & Francisco López 9520*.

***Clusia Lopezii* Maguire sp. nov.**, sect. **Pachystemon** Engler, subsect. **Retinostemon** Planchon & Triana.

Epiphytica; ramis tenuibus; petiolis 1.5–2 cm. longis, tenuibus, laminis 6–10 cm. longis, 3.5–5 cm. latis, oblanceolatis, rotundatis, chartaceis, in petiolum acutum angustatis, costa ad apicem extensa, nervis lateralibus, prominulis; inflorescentia masculina nutanti, trichotoma, 5–6 cm. longa, 7–9 flora; sepalis 10, 2-jugis, exterioribus late rotundatis, 3 mm. vel minus longis, interioribus 10 mm. longis, imbricatis, reniformi-orbicularibus vel oblongo-orbicularibus, petaloideis, scarioso-marginatis; petalis maturis reflexis, 3–4 mm. longis, 4–5 mm. latis; staminibus marginalibus 4–6 serialibus, fertilibus, interioribus sterilibus, antheris 2-ocularibus, thecis terminalibus tangentialiter dehiscentibus; ovario abortivo, in profunde excavatum deposito; floribus masculinis non visis.

No immediate relatives of *Clusia Lopezii* are as yet recognized. It is temporarily best assigned to the ill-defined subsect. *Retinostemon*.

This interesting and handsome species is named for the late Francisco López, field assistant of Dr. Schultes.

COLOMBIA: Comisaría del Vaupés, Río Negro, at confluence of Ríos Guainía and Casiquiare, Caño Ducuruapo (Igarapé Rana). "Epiphyte with white flowers; in caatinga." December 13–17, 1947, *R. E. Schultes & F. López 9388* (TYPE in Herb. N.Y. Bot. Gard.).—Comisaría del Vaupés, Río Negro, vicinity of Piedra del Cocuí. "Flowers white," December 27, 1947, *Schultes & López 9473*.

***Clusia microstemon* Planchon & Triana** in Ann. Sci. Nat. sér. 4, 13 (1860) 331, sect. **Phloianthera** Planchon & Triana.

Schultes 3975 greatly extends the known range of

Clusia microstemon and registers the species from Colombia. It is closely related to *Clusia Gaudichaudii*.

BRAZIL: "Prope Panuré [Ipanoré] ad Rio Uaupés," October 1852–January 1853, *Spruce 2511* (TYPE) (DUPLICATE TYPE in Herb. N.Y. Bot. Gard.).

COLOMBIA: Comisaría del Amazonas, Río Igaraparaná, los alrededores de La Chorrera, alt. about 180 m. "Large strangler without latex; flowers large; petals white, red towards centre; centre of flower deep yellow; flower saucer-shaped." June 4–10, 1942, *R. E. Schultes 3975*.

***Clusia opaca* Maguire sp. nov.**, sect. **Criuva** *Bentham & Hooker*, subsect. **Eucriuva** *Engler*.

Arbor parva; ramulis tenuibus, 3–4 mm. diam., internodiis 1–3 cm. longis; foliis dense chartaceis, petiolis 10–12 cm. longis, tenuibus, laminis oblongis vel oblongo-ob lanceolatis, 7–9 cm. longis, 2.5–3.5 cm. latis, valde revolutis, apice obtuso, basi obtusa, costa supra prominula, subtus prominenti, nervis lateralibus a costa angulo circa 20° abeuntibus, supra prominulis, subtus prominentibus; inflorescentia solitaria, terminalis, compacta, multiflora, 1.5–2 cm. longa vel saepe nonnullis subterminalibus, axillaribus, bracteolis minutis, late orbicularibus; floribus masculinis subsessilibus, cum jugo parvis, carinatis, bracteolis appropinque subtentis; sepalis 4–5, exterioribus decussatis, 3–4 mm. longis, orbiculari-obovatis, crassissimis, interioribus 2 vel 3, ca. 4 mm. longis, orbicularibus, fere concavis; stamini extrorsis, numerosis, inaequaliter 4–5 seriatis, filamentis in anulum 1–1.5 mm. altum connatis, receptaculo apice concavo, glabro, non glutinoso, filamentis exterioribus ca. 0.2–0.3 mm. longis, interioribus 0.5–0.7 mm. longis, antheris 0.7–1 mm. longis, oblongis, obtusis, inappendiculatis, pinguibus, incurvatis, lateraliter dehiscentibus; floribus foemineis non visis.

Clusia opaca appears to be associated with those species which centre around the south Brazilian *C. Cambes-*

sedesii Planchon & Triana; hence, it must be placed in the subsect. *Eucriuva*. I am unable, at this time, to recognize any close relatives of this fascinating little species.

BRAZIL: Estado do Amazonas, path between headwaters of Igarapé and headwaters of Igarapé Abiú, affluent of Rio Taraira. "Small treelet; flowers white; very fragrant; in caatinga." Makú Indian name: *paí-nan-ge*. July 4-6, 1948, *R. E. Schultes & F. López 10192* (TYPE in Herb. N.Y. Bot. Gard.).

Clusia penduliflora Engler ex Martius in Fl. Bras. 12, pt. 1 (1888) 412, sect. ***Clusiastrum*** Planchon & Triana, subsect. ***Brachystemon*** Engler.

Schultes 5521, the first collection of *Clusia penduliflora* from Colombia, represents pistillate material in which the fruit is quite mature. The fruit was apparently fleshy, "red," probably ovoid and 2-3 cm. long. Its five small sessile stigmas are considerably disjunct, each stigma ovate, somewhat concave, 3 mm. long and 2 mm. broad. The lower 4 pairs of bracts are small and decussate, the inner 6-7 sepaloid bracts are imbricate, about 10 mm. broad, 8 mm. long, rounded and broadly scarious.

It is interesting to note that each of the three widely separated localities known for *Clusia penduliflora* is associated with local occurrences of cretaceous sandstone or proterozoic granite savannas or caatingas. The floras of elevations along the Río Macaya and at São Paulo de Olivença have many elements in common with that at Ipanoré on the Río Uaupés.

BRAZIL: "Prope Panuré [Ipanoré] ad Rio Uaupés, October 1852-January 1853, *Spruce 2792* (TYPE) (DUPLICATE TYPE in Herb. N.Y. Bot. Gard.).—Estado do Amazonas. Near Palmares, Sao Paulo de Olivença. "Vine, terra firma, highland." Sept. 11-Oct. 26, 1936, *Krukoff 8324*.

COLOMBIA: Comisaría del Vaupés, vicinity of Cachivera del Diablo and mouth of Río Macaya, alt. 300 m. "Vine with red fruit." May 1943, *R. E. Schultes 5521*.

Clusia Planchoniana *Engler ex Martius* in Fl. Bras. 12, pt. 1 (1888) 431, sect. **Pachystemon** *Engler*, subsect. **Polythecandra** (*Pl. & Tr.*) *Engler*.

Polythecandra Spruceana Planchon & Triana in Ann. Sci. Nat. sér. 4, 14 (1860) 229.

This species, probably not hitherto collected since the time of Spruce, is now recorded for the floras of Colombia and Venezuela. Schultes' specimens provide essentially mature fruit, thus effectively supplementing the original collections.

BRAZIL: "Prope Sao Gabriel do Cachoeira, ad Rio Negro, Brasiliae borealis," January–August 1852, *R. Spruce 2251* (TYPE) (DUPLICATE TYPE in Herb. N.Y. Bot. Gard.).—*R. Spruce 1980*.

COLOMBIA: Comisaría del Vaupés, Río Negro, San Felipe (El Castillo), below confluence of Ríos Guainía and Casiquiare. "Large bush; fruit oblong with sepals and petals persisting, and with 5 triangular remnants of stigmas, $\frac{1}{2}$ cm. each side, elevated; common in caatinga." December 12, 1947, *R. E. Schultes & F. López 9323*.

VENEZUELA: Territorio del Amazonas, Río Negro, Piedra del Cocui. "Large bush; fruit green." December 22–23, 1947, *R. E. Schultes & F. López 9445*.

Clusia renggerioides *Planchon & Triana* in Guttifères (1862) 45, sect. **Cordylandra** *Planchon & Triana*.

Engler (Fl. Bras. 12, pt. 1 (1888) 427) cites, in addition to the type of this species, *Spruce 1507* (Rio Negro, prope Manáos). I have seen the following specimens from the basin of the Rio Madeira, Estado do Amazonas, Brazil: *Krukoff 6810, 7212*.

The original and subsequent descriptions of *Clusia renggerioides* lack characterization of the fruit. *Schultes 3940* and the two *Krukoff* collections are from young and mature fruiting specimens respectively and form the basis of the following description: inflorescence 3–5 flowered, 2–4 cm. long; bracts decussate 10–12 pairs, the outer minute, the inner two pairs sepaloid, crassate, suborbicular, 6–7 mm. long, 5–6 mm. broad, scarious-mar-

gined; petals 5, crassate, obovate, reddish, 8–10 cm. long; staminodia obsolete; immature ovary cylindrical; mature fruit pyriform, 5-celled, 12–15 mm. long, ca. 8 mm. broad; stigmas pyramidal, essentially connivent, each stigma triangular or rhomboidal, ca. 2 mm. long; ovules numerous, pluriseriate, subpendent, matrix yellow, seed 1–2 mm. long, reddish.

Recent collections indicate that the species has a great geographical range. Through *Schultes 3940* and *5565*, *Clusia renggerioides* is now recorded for the flora of Colombia.

BRAZIL: Panuré Ipanoré, Rio Uaupés de l'Amazone. *Spruce 2895* (TYPE) (DUPLICATE TYPE in Herb. N.Y. Bot. Gard.).—Near Livramento, Rio Livramento, Humaytá. “Strangling vine, ‘apui’; on terra firma.” October 12–November 6, 1934, *Krukoff 6810*.—Plateau between Rio Livramento and Rio Ipixuna, Humaytá. “Vine, cipoal.” Nov. 7–18, 1934, *Krukoff 7212*.

COLOMBIA: Comisaría del Amazonas, los alrededores de La Chorrera, Río Igaraparaná, alt. ca. 180 m. “Strangler; petals red-purple. June 4–10, 1942, *R. E. Schultes 3940*.—Comisaría del Vaupés, Cerro La Campana, Ajaju River. “Treelet 25 feet tall, diam. 4–5 inches; bark black; latex thin, white, resinous; flowers red-brown; in forests on craggy slopes, (sandstone) summit about 800–1200 feet above forest floor, 1700–2100 feet above sea level.” June 1–6, 1943, *R. E. Schultes 5565*.

***Clusia Schultesii* Maguire sp. nov., sect. *Criuva* Bentham & Hooker, subsect. *Eucriuva* Engler.**

Frutex; ramulis crassis, subsucculentis, in sicco sulcatis; ramulorum internodiis 1–2 cm. longis; foliis 8–12 cm. longis, 5–7 cm. latis, subsessilibus, coriaceis, orbiculari-obovatis, basi aliquantum acuta, margine aliquantum crassa revolutaque, costa inferne crassa, apice prominulo, nervis lateralibus prominulis, prope marginem nervo colectivo 1 mm. remoto; lamina supra laccata, subtus non lucida; inflorescentia masculina 10–15 cm. longa, 3–9 flora, pedunculo 8–10 cm. longo, 5–6 mm. crasso, ramis 5–10 mm. longis, bracteis semiorbicularibus, ca. 5 mm. longis; sepalis 6–7, inferioribus oppositis

vel omnibus imbricatis, interioribus 6–8 mm. longis, oblongo-orbicularibus; petalis 16–18 mm. longis, 8–10 mm. latis, sine unguiculis; staminibus numerosis, filamentis liberis, 3–5 mm. longis, ca. 0.5 mm. crassis, basi tangentialiter lata, antheris linearibus, muticis vel minute apiculatis 3–4 mm. longis, connectivo lato, thecis lateralibus longitudinalibus dehiscentibus; stigmatibus 5, ovatis, acutis, sessilibus, conniventis, pyramidalibus; fructu 2 cm. longo, valvis 5, explanatis, 2.2 cm. longis.

Clusia Schultesii is obviously most closely related to the Peruvian *C. pseudo-mangle* Planchon & Triana (duplicate type in Herb. N.Y. Bot. Gard.), which has larger and more strongly veined leaves that are not varnished; a smaller inflorescence 6 cm. long; and stamens 3 mm. long.

Clusia Schultesii is certainly one of the most striking species in the genus and apparently is the dominant one on Cerro Chiribiquete.

COLOMBIA: Comisaría del Vaupés, Cerro Chiribiquete, Río Macaya, Upper Apaporis Basin. "Large shrub 12 feet high; flowers white, very fragrant, frequented by many species of insects; xerophytic savanna; on sandstone, 400–1200 feet above forest level, 1300–2100 feet above sea level. July 24, 1943, *R.E.Schultes 5621* (TYPE in Herb. N.Y. Bot. Gard.).—Same locality. "Scraggly shrub 10 feet high; latex white." May 15–16, 1943, *R.E.Schultes 5475* (COTYPE in Herb. N.Y. Bot. Gard.).

***Clusia spathulaefolia* Engler** in Fl. Bras. 12, pt. 1 (1888), 412, sect. ***Clusiastrum* Planchon & Triana**, subsect. ***Brachystemon* Engler**.

This species apparently has been known only from the type. Our specimen is a pistillate collection and compares favorably with the description and a photograph of the type specimen at the Vienna Herbarium. The essentially mature fruit of *Schultes 5847* is globose, 12–14 mm. long, six-celled, with the six minute stigmas 1

mm. long and sessile on short stout styles which are well spread apart.

BRAZIL: In rupibus humilioribus pr. Panuré [Ipanoré] ad Río Vaupés, *Spruce 2782* (TYPE).

COLOMBIA: Comisaría del Vaupés, savanna at base of Cerro Circasia, alt. 250 m. "Scandent shrub; fruit in pendent clusters." March 7, 1944, *R.E. Schultes 5847*.

Moronobea coccinea *Aublet* Hist. Pl. Guian. 2 (1775) 789, *pro max. parte*.

Collections of *Moronobea coccinea* from Colombia are few. The species is not abundant at the locality of *Black & Schultes 46-369*.

COLOMBIA: Comisaría del Amazonas, caatinga at headwaters of Río Hamacayacu, interior regions of trapezio amazónico between Amazon and Putumayo watersheds, November 1946, *G.A. Black & R.E. Schultes 46-369*.

Moronobea riparia *Spruce ex Planchon & Triana* in Ann. Sci. Nat. sér. 4, 14 (1860) 296.

Moronobea riparia was described from *Spruce 3350*, collected along the Casiquiare in 1854. It has possibly not been re-collected until recently. Because of its relatively short and broad leaves, *Schultes 9857* may perhaps be found to represent a distinct variety. *Fróes 21352* and *Schultes & Pires 9060* appear to be the only records of this species from Brazil, while *Schultes & López 9382*, a topotypic collection, is the first from Colombian territory.

BRAZIL: Estado do Amazonas, Igarapé da Chuva, Taracuá, Río Uaupés between Ipanoré and confluence with Río Negro. "Small tree with shaggy black bark; flat crown, and opposite branches at right angles; wood white and soft; flowers greenish white." Nov. 12, 1947, *R.E. Schultes & J.M. Pires 9060*.—Estado do Amazonas, Río Aiary, region of Río Negro. "Árvore 12 m., 30 cm., flores olorosas a noite, amarelo verde; resina amarela, abundante." November 7, 1945, *R.L. Fróes 21352*.

COLOMBIA: Comisaría del Vaupés, Río Negro at confluence of Ríos Guainía and Casiquiare, Caño Ducuruapo (Igarapé Rana). "Storied tree 40 feet tall; bark thick, checked, grey; wood soft, white; very

abundant in caatinga." December 13-17, 1947, *R. E. Schultes & F. López 9382*.

Oedematopus aff. **O. duidae** *Gleason* in *Bull. Torr. Bot. Club* 58 (1931) 406.

The occurrence on Mount Chiribiquete of this element with *Duida* affinities once more stresses the phytogeographical relationships of these two cretaceous quartzitic masses.

COLOMBIA: Comisaría del Vaupés, Upper Apaporis basin, Macaya River, Mount Chiribiquete. "Bush, extensive and scraggly, up to 8-10 feet. Trunk stout. Latex weak, white. Fruits green when ripe. On driest, hottest exposure." May 15-16, 1943, *Richard Evans Schultes 5462*.—Same locality and date. "Latex white. Scraggly bush. Fruit green." *R. E. Schultes 5480*.

Oedematopus obovatus *Spruce ex Planchon & Triana* in *Ann. Sci. Nat. sér. 4*, 14 (1860) 250.

Oedematopus obovatus was described from *Spruce 2803* collected at Ipanoré on the Rio Uaupés. It is apparently new to the flora of Colombia. *Schultes 5515* appreciably extends its known range to the west.

COLOMBIA: Comisaría del Vaupés, Macaya River; vicinity of Cacchivera del Diablo and mouth of River. Alt. about 300 m.? May 1943, *Richard Evans Schultes 5515*.—Comisaría del Vaupés, Río Negro, at confluence of Ríos Guainía and Casiquiare, Caño Ducuruapo (Igarapé Rana). "Bush. Flowers reddish." December 13-17, 1947, *Richard Evans Schultes & Francisco López 9350*.

Oedematopus octandrus (*Poepp. & Endl.*) *Planchon & Triana* in *Ann. Sci. Nat. sér. 4*, 14 (1860) 250.

Planchon & Triana cite the type from Peru (*Poeppig 1440*) and two *Spruce* collections (*2765* and *3321*) from Ipanoré (Rio Uaupés) and the Casiquiare in Brazil and Venezuela respectively. It is now registered from Colombia, from a locality not far from Ipanoré.

COLOMBIA: Comisaría del Caqueta, Río Taraira, above lowermost rapids. "Small tree. Flowers pink. Latex yellow." July 11, 1948, *Richard Evans Schultes & Francisco López 10201*.

Quapoya peruviana (*Poepp. & Endl.*) *O. Kuntze*
Rev. Gen. 1 (1891) 61.

This species is now registered for the Amazonian flora of Colombia.

COLOMBIA: Trapecio amazónico, interior regions of trapecio, between Amazon and Putumayo watersheds. Alt. above 100 m. "Epiphyte. Flowers yellow." October 1945, *Richard Evans Schultes* 6762.

VIOLACEAE

Amphirrhox surinamensis (*Miq.*) *Eichler* in *Martius Fl. Bras.* 13, pt. 1 (1872) 377.

Amphirrhox surinamensis is known from British and Dutch Guiana and from the Rio Negro basin of Brazil. It is apparently never an abundant plant in the Brazilian part of its range, but occurs rather locally; it is known from Manáos and from São Gabriel where it was collected by Spruce.

BRAZIL: Estado do Amazonas, Rio Negro, base of Serra Uanarí, near São Gabriel. "Bush." October 31, 1947, *Richard Evans Schultes & João Murça Pires* 8979.

FLACOURTIACEAE

Mayna grandiflora (*Spruce ex Eichler*) *R. E. Schultes* *comb. nov.*

Carpotroche grandiflora Spruce ex *Eichler* in *Martius Fl. Bras.* 13, pt. 1 (1871) 437.

This interesting treelet of the upland forests of the upper Río Negro basin has hitherto been known only from Brazil. The type was collected by Spruce at São Gabriel (Vaupés) below the confluence of the Rios Negro and Vaupés. Spruce also collected *Mayna grandiflora* from Ipanoré on the Rio Vaupés.

BRAZIL: Estado do Amazonas, Rio Solimoes, Tonantins. "Matta da terra firme." January 1944, *A. Ducke IAN* 149.

COLOMBIA: Comisaría del Vaupés, Río Negro, vicinity of Piedra del Cocuí. "Treelet 15 feet tall. Fruit greenish, papery-dry. Bark said to be 'strong poison' for rodents and for man. Has odor of winter-

green (the bark).'' December 27, 1947, *Richard Evans Schultes & Francisco López 9524*.—Same locality, date and collectors, *9531*.

COMBRETACEAE

Ramatuella argentea *Humboldt, Bonpland & Kunth* Nov. Gen. & Sp. 7 (1825) 253, t. 656.

The type of *Ramatuella argentea* was collected by Humboldt on the upper Orinoco. Spruce re-collected it at the mouth of the Río Guainía (*Spruce 3498*) in 1854. *Schultes & López 9392* is an exact topotype. This tree is not common in the Río Negro basin.

COLOMBIA: Comisaría del Vaupés, Río Negro, Caño Ducuruapo (Igarapé Rana) at confluence of Guainía and Casiquiare. "Medium-sized tree along river's edge. Leaves silvery." December 17, 1947, *Richard Evans Schultes & Francisco López 9392*.

Ramatuella virens *Spruce ex Eichler* in *Martius* Fl. Bras. 14, pt. 2 (1867) 100.

Ramatuella virens was described by Spruce on the basis of his collection *3758* from the junction of the Río Guainía and the Casiquiare. *Schultes & López 9395* is an exact topotype of this species and would appear to represent the second collection. The leaves of *Schultes & López 9395* are somewhat narrower than in the type specimen.

COLOMBIA: Comisaría del Vaupés, Río Negro, Caño Ducuruapo (Igarapé Rana) at confluence of Guainía and Casiquiare. "Medium-sized tree." December 17, 1947, *Richard Evans Schultes & Francisco López 9395*.

ARALIACEAE

Didymopanax Morototoni (*Aubl.*) *Decaisne & Planchon* Rev. Hort. IV, 3 (1854) 109.

A widespread (but in Colombia often very localized) species, *Didymopanax Morototoni* is a characteristic component of the low forest associated with the savannahs or caatingas which, in Amazonian Colombia, occur dis-

ruptedly on sandy areas of presumed cretaceous age and which support what appears to be in general a remnant flora. This species is extremely variable in nature, a peculiarity which is strikingly reflected by the material preserved in our herbaria.

In the Río Igaraparaná, *Didymopanax Morototoni* is known as *sacha-uva*. The Witotos of the same area call it *mo-hö-ka*.

COLOMBIA: Comisaría del Amazonas, Río Igaraparaná, los alrededores de La Chorrera. Alt. ca. 180 m. "Medium-sized tree. Flowers white," June 4-10, 1942, *Richard Evans Schultes 3949*.

Didymopanax Spruceanus *Seemann* in *Journ. Bot.* 6 (1868) 132.

This species is one of the commonest elements of the caatinga-association of the upper Rio Negro basin, but it is rare in collections. *Schultes & López 9380B* appears to be the first collection from Colombian territory. The type was found by Spruce near Ipanoré on the Rio Uaupés.

BRAZIL: Estado do Amazonas, Rio Negro, Jucabí (at mouth of Rio Curicuriarí) and vicinity. "Tree. Flowers white. In caatinga." January 17, 1948, *Richard Evans Schultes & Francisco López 9631*.

COLOMBIA: Comisaría del Vaupés, Río Negro, at confluence of Ríos Guainía and Casiquiare, Caño Ducuruapo (Igarapé Rana). "In low caatinga." December 13-17, 1947, *Richard Evans Schultes & Francisco López 9380B*.

MYRSINACEAE

Ardisia panurensis *Mez* in *Engl. Pflanzenr.* IV, 236 (Heft 9) (1902) 95.

The type of *Ardisia panurensis* was collected by Spruce at Ipanoré, a point on the Rio Uaupés not far from the locality of the collection cited below. This species has hitherto been collected in Colombia at the distant locality of Umbría in the Comisaría del Putumayo. It is a rather wide ranging but seemingly rare species,

being known as far southwest in the Amazon as Loreto in Peru.

COLOMBIA: Comisaría del Vaupés, Río Negro, vicinity of Piedra del Cocuí. "Small treelet, 15 feet. Flowers red or white with red stripes (on same inflorescence). On flood-bank." December 27, 1947, *Richard Evans Schultes & Francisco López 9470*.

***Conomorpha riparia* R. E. Schultes sp. nov.**

Arbuscula parva, ramulis junioribus dense adpresso-ferrugineo-tomentellis, mox sordide fuscis, denique glabrescentibus. Folia cum petiolis 10–20 mm. (sed plerumque 15 mm.) longis, plusminusve 1 mm. crassis, valde striatis, densissime ferrugineo-tomentellis; lamina chartacea, anguste lanceolata, paulo marginata, apice acuta vel aliquid subapiculata, statu adulto 8.5–10 cm. longa, 2.2–3.8 cm. lata, supra atroviridis et pilis stellatis albis minutissime oblecta et nervis haud conspicuis, subtus omnino sed praecipue nervum centralem versus magno-pere densissime atque molliter ferrugineo-stellato-pilosa. Inflorescentiae erectae vel suberectae, strictae, foliis multo breviores, 2–4 cm. longae, densiflorae, usque ad basim florigerae, axi aliquid crassiusculo, sparse scabro-leproso. Flores subsessiles, patentis, plerumque 5 mm. longi, ore 5–6 mm. in diametro, lutei, fragrantis. Sepala ad $\frac{1}{4}$ connata, lobis triangularibus, acutis, 2.3 mm. longis, margine papillosis, extus glanduloso-pilosis. Petala media pro parte connata, lobis ovatis, apice obtusis, margine papillosis, utrinque glandulosis. Stamina petalis breviora, filamentis crassissimis, usque ad 1.2 mm. longis, liberis, quam antheris bene recurvis, 0.6–0.7 mm. longis longioribus. Ovarium lageniforme, lepidotum, stylo cylindrico crasso, usque ad 1.8 mm. longo.

Conomorpha riparia of the uppermost reaches of the Río Negro resembles *C. grandiflora* Mez, a species known only from the middle Río Negro between Barcellos and Tapurucuara. In addition to floral differences, the dense